JULY 1951

WIRE AND WIRE PRODUCTS

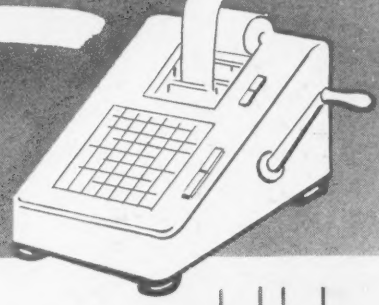
Built to serve the PROFIT-motive!

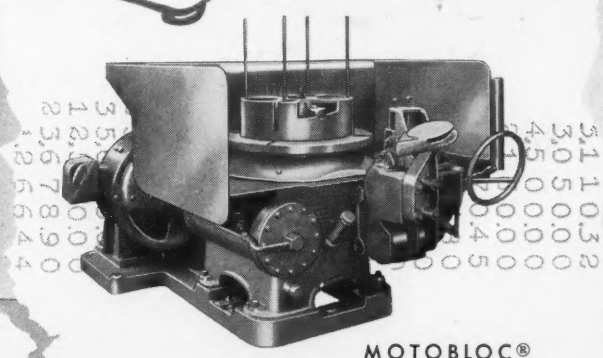
Vaughn®

WIRE DRAWING MACHINERY

The shop performance of Vaughn Machinery pays off in eloquent white-collar figures. And because today's Vaughn units produce more, in shorter time than ever before, we suggest that you re-examine your less modern machines with a view to profit-increasing replacement. Write, for *facts* you can depend upon.

The VAUGHN MACHINERY CO.
CUYAHOGA FALLS, OHIO, U.S.A.





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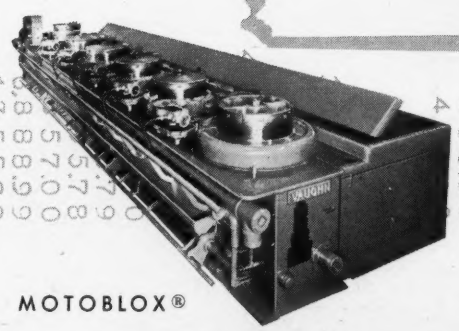

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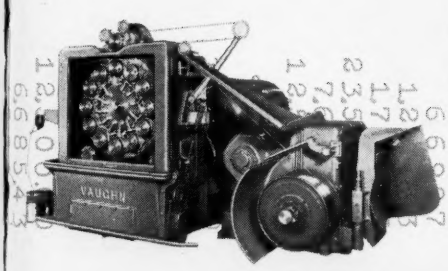

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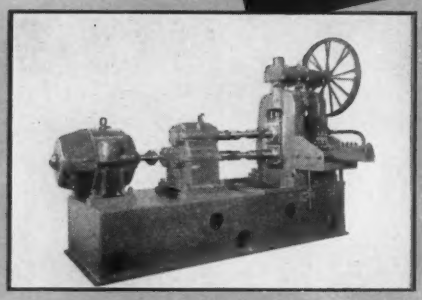
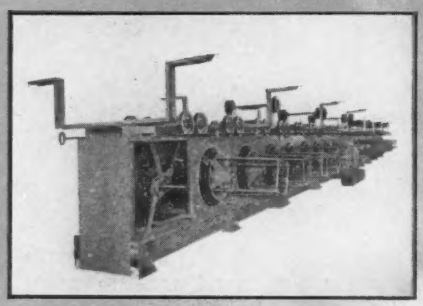
OFFICIAL PUBLICATION OF THE WIRE ASSOCIATION

LOOK TO Wean FOR WIRE MACHINERY

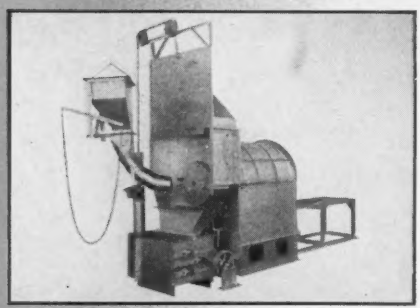
Process OR Product



2—Hi Wire Flattening Mill



Wire Galvanizing Take-Up Frame

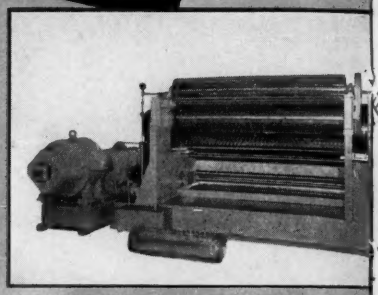


Nail Galvanizing Unit

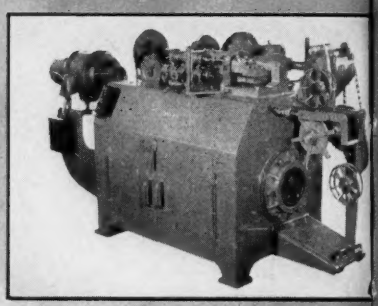
In the past few years tremendous progress has been experienced in the field of wire machinery. Production speeds have been tripled and quadrupled. Product quality has been greatly improved. Machines have been made easier to operate and maintain.

The Wean Equipment Corporation has been a large contributor to this advancement. Wean wire mill specialists have designed, built, and installed wire mill equipment for the leading wire producers the world over. If you make wire you should look to Wean for the best in machinery, service, and facilities.

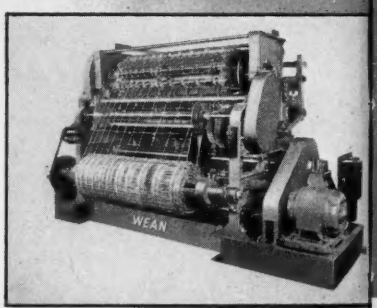
STRIP MACHINERY



Hexagon Netting Machine

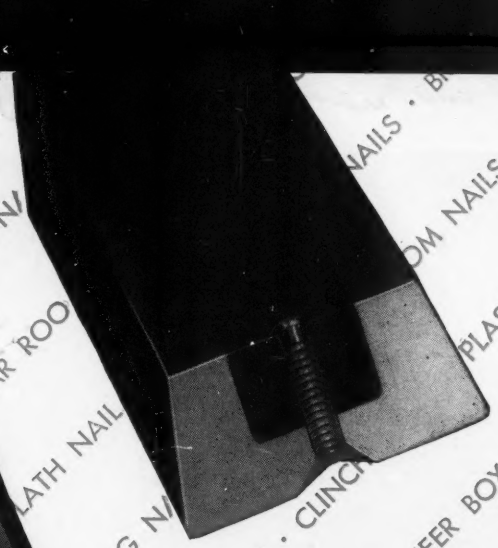


2 or 4—Point Barbed Wire Machine



Hinge — Joint Fence Machine

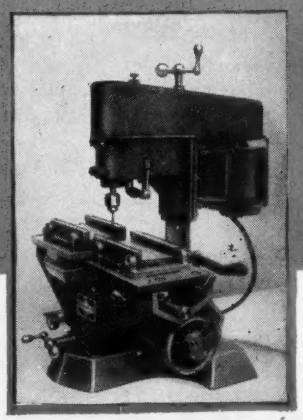
Wean Equipment Corporation
CLEVELAND, OHIO



Over 2/3 OF ALL NAIL MANUFACTURERS USE Firthaloy NAIL GRIPPER DIES

with the following excellent results: increased production; increased efficiency; better quality nails; lower machine maintenance; lower production costs; less work for operators. Average life of Firthaloy dies—800 to 1600 hours per grind. Total life of Firthaloy dies—8,000 to 16,000 hours.

Any surface grinder can be used to grind Firthaloy Nail Gripper Dies preparatory to finishing.



Finishing Firthaloy Nail Gripper Dies should be done on a Firth-Sterling Nail Barbing machine illustrated herewith.

R-242

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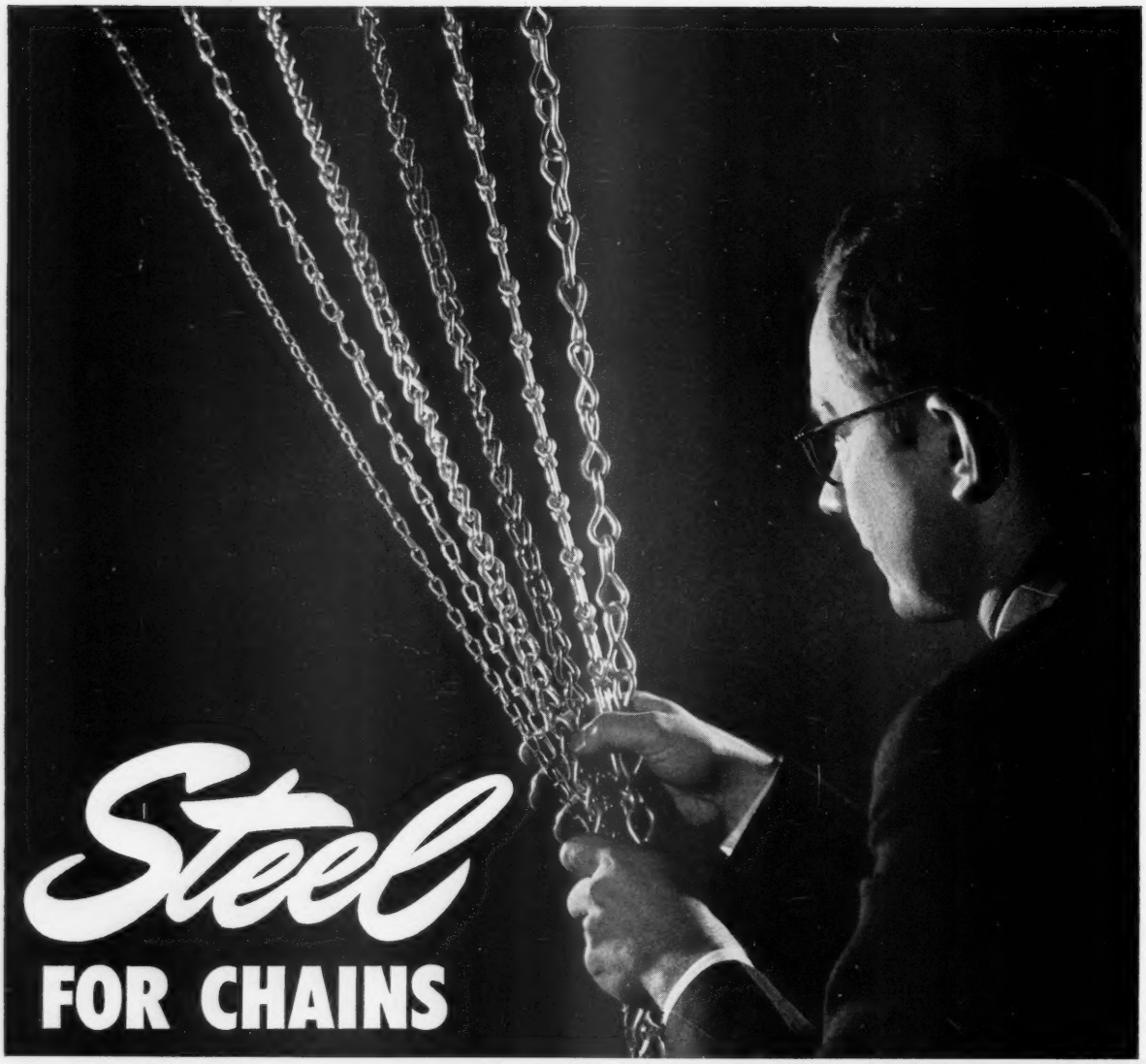

When a chain is needed for any purpose, steel is usually the best bet. That's because steel chain is strong, and lasts a long time. It's economical, too, whether for keeping Rover at home or for an industrial application.

Making wire for a variety of chains is a Bethlehem specialty. Pump chain, tire skid chains, electric-welded chain. Each of these, and many other kinds of chain, require a kind of steel that's tailor-made to do the job. Whatever may be required—in analysis, finish, temper, and other characteristics—we produce with utmost care in our modern wire mills.

Whether it's "specials" or the more common kinds of steel wire, you can rely on Bethlehem quality. If you have a problem involving the selection or use of steel wire, our nearest sales office will give you prompt assistance.

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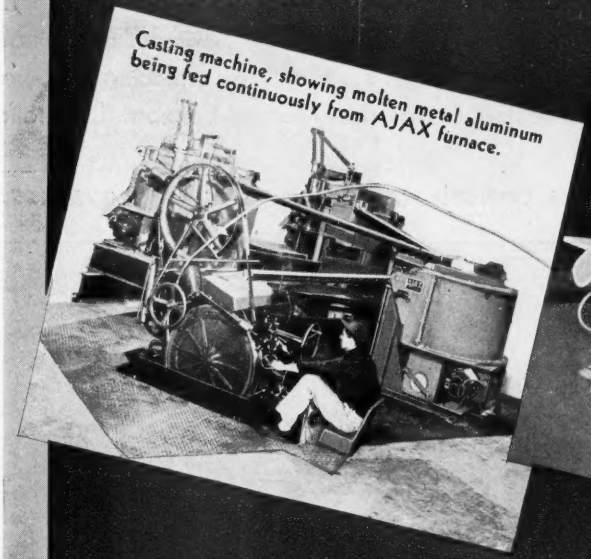
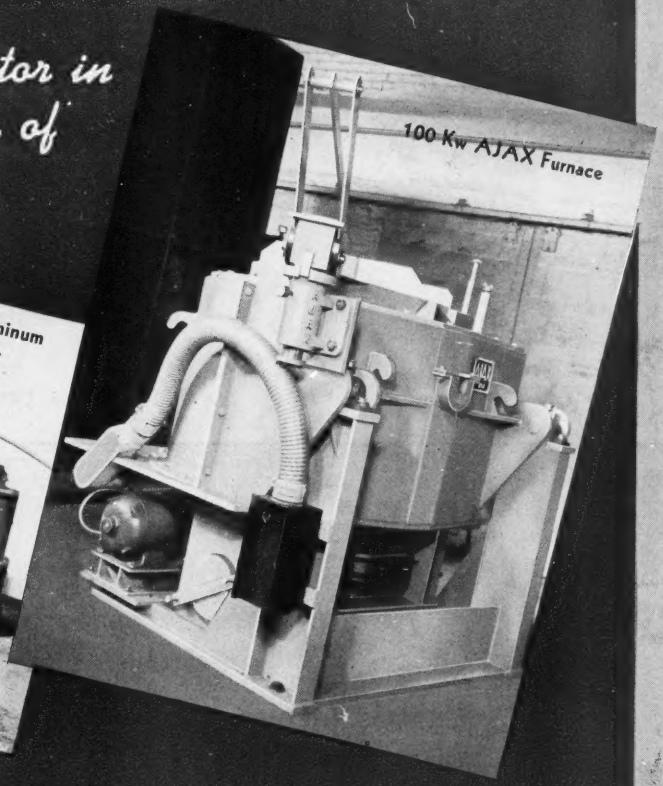


Casting machine, showing molten metal aluminum being fed continuously from AJAX furnace.



100 Kw AJAX Furnace

The picture at left above, taken at the Davenport, Iowa, plant of the Nichols Wire & Aluminum Co., is a graphic example of the way in which AJAX furnaces are helping in modern methods of production. Three AJAX furnaces, two as melting units and the third acting as a holding furnace, feed a continuous stream of molten aluminum at automatically controlled temperature into a rim cavity on the slowly revolving wheel of the Properzi machine, which produces ⅜" aluminum wire directly from molten metal.

By this method scrap loss from pig to rod averages less than 1 pct., an extremely low figure, and all scrap is remelted, so that actually NO LOSS results. The entire installation requires very little space. Working conditions are cleaner and cooler; the only heat is that generated within the melting metal itself.

Installations such as these illustrate the versatility of the AJAX furnace, which is doing so much to conserve manpower and reduce costs in these critical times.

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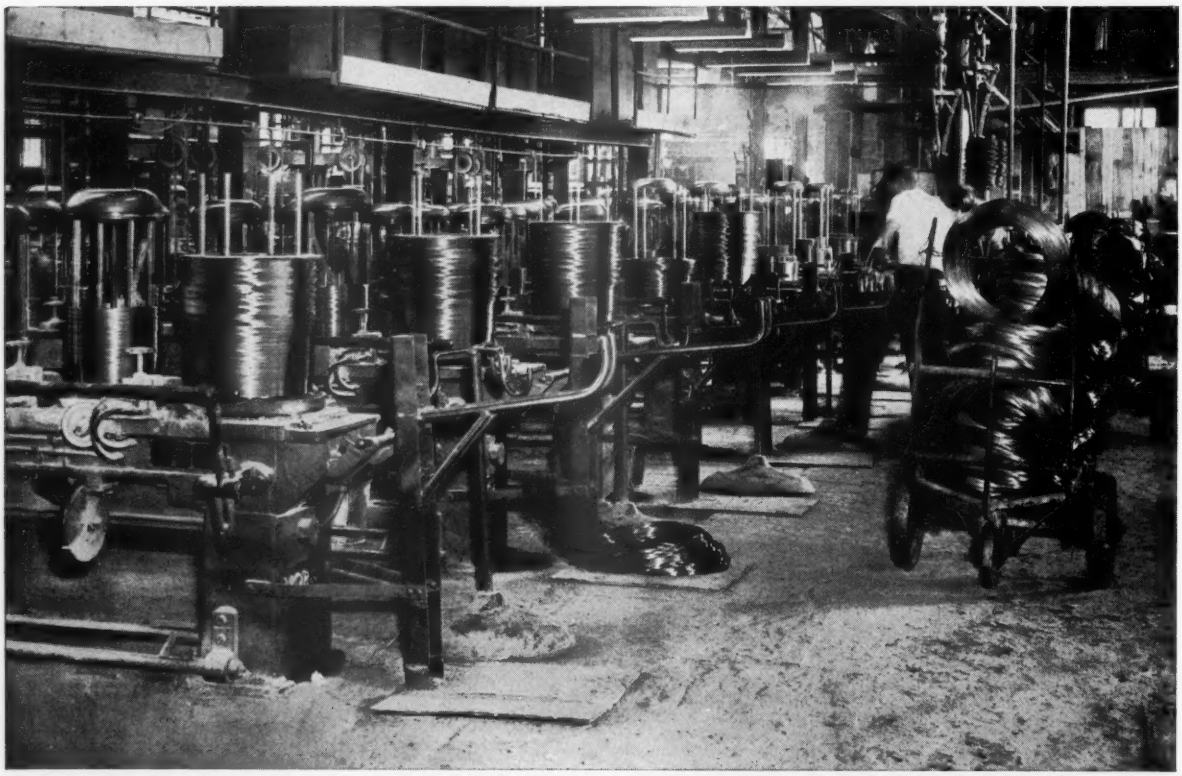

(Photo: Courtesy Wickwire Bros. Co., Courtland, N. Y.)

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WIRE MACHINES

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A monthly publication devoted to the production of Wire, Rod and Strip, Wire and Rod Products and Insulated Wire and Cable.

DRAWING — ROLLING — EXTRUDING — FORMING — FABRICATING

Vol. 26 JULY, 1951 No. 7

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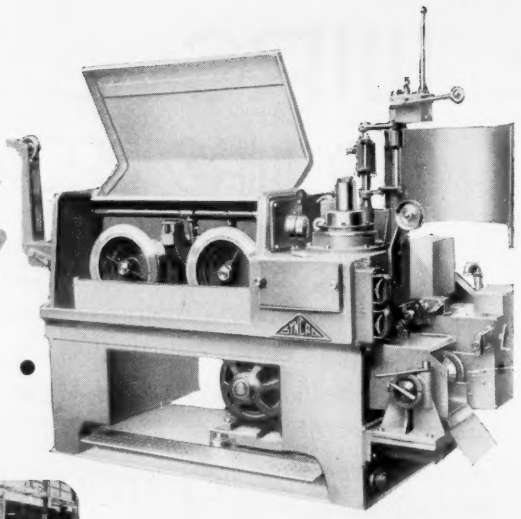

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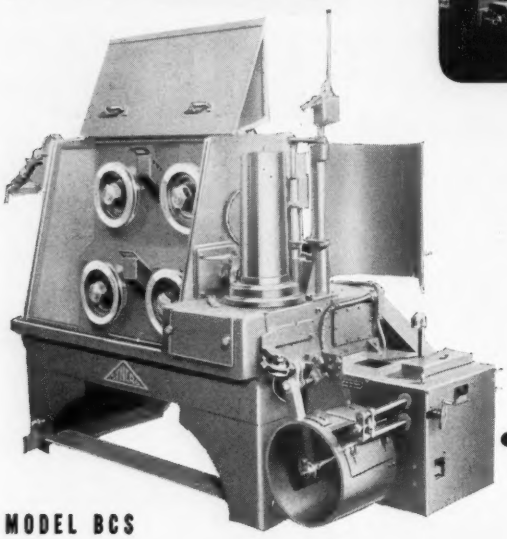
AND OTHER
high tensiles...



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A choice of two advance design, wet, fine-wire drawing machines suitable for drawing stainless, high carbon and other high tensile materials . . . Model BBS-2 shaft and Model BCS-4 shaft. These are in demand where high speed continuous operation is needed to meet the high pressure requirements of today! They are available as COILER or COILER-SPOOLER MACHINES similar to those shown in the illustrations. Both can be furnished with water cooled coiler blocks and spooler units up to 100 pound capacity . . . To increase efficiency in operation they are equipped with automatic shutoffs . . . ● entry-wire snarl shut off switch . . . ● broken-wire shut off switch . . . and, ● full-package shut off switch. The spoolers are acknowledged to be of the most modern design producing clean and uniformly wound wire. Write us for more pertinent facts that will show you how your production can be accelerated.

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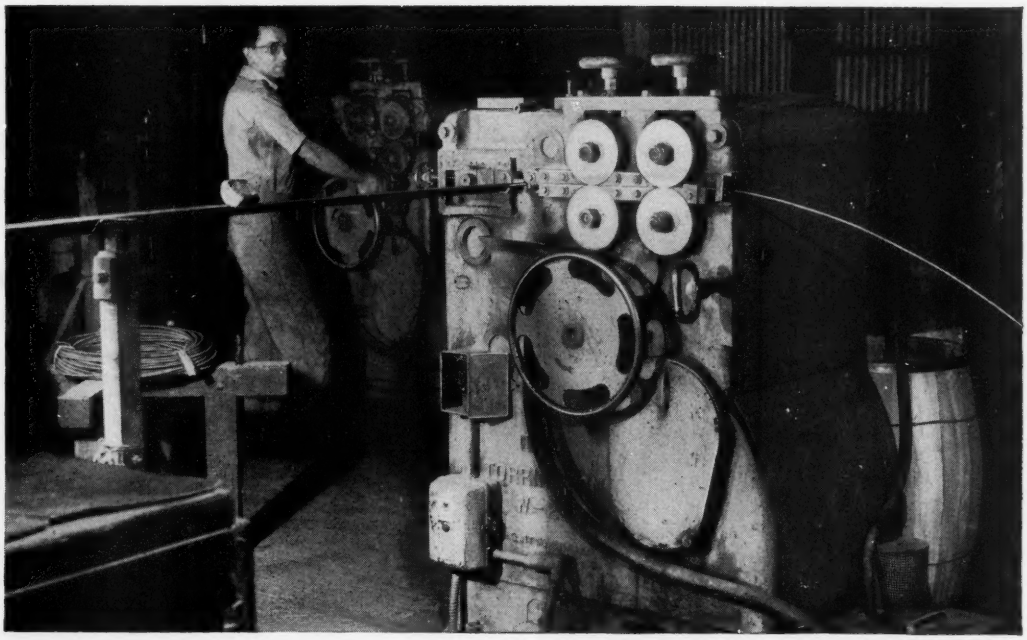

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. . . round, flat and shaped

WHEREVER a manufactured product calls for high carbon steel wire, Roebling wire will bring you top results . . . and help your production, too! Every inch of these Roebling specialty wires is identical in grain, gauge and finish. Your preparation time is lowered; machine stoppages and rejects cut way down. And there's a Roebling round, flat or shaped wire for almost every application.

Roebling's specialty wire plant is one of the largest in America. Today a large share of its output is required in the rearmament program. We assure you, however, that we will always do our level best to fill your orders as required. John A. Roebling's Sons Company, Trenton 2, New Jersey.

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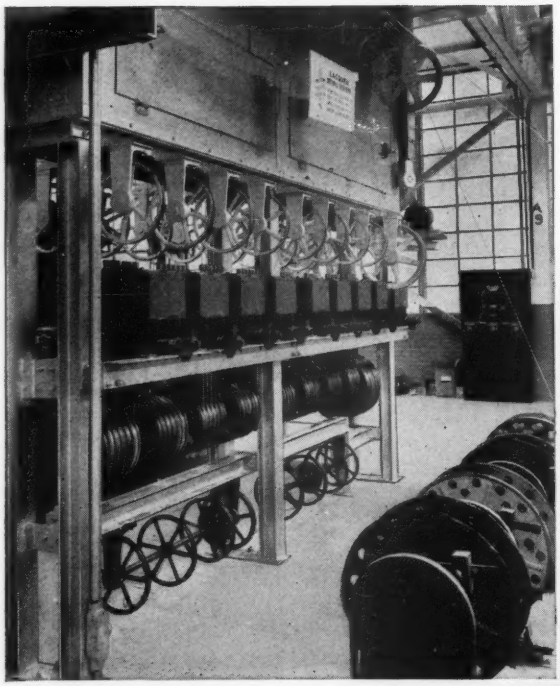

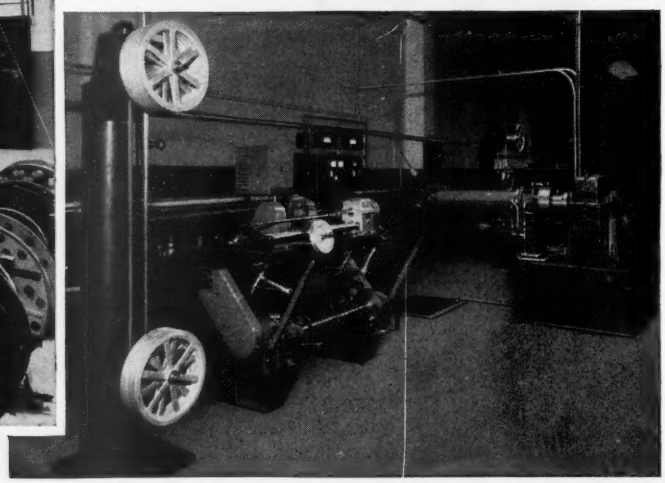

ORGANOSOL COATER

The organosol system shown above will handle 9 ends of wire, each end being coated with as many as 8 individual coats. It is the thirty-second such system installed by IOI. Photograph shows the general arrangement of the coating pots, the wire travel, the bottom idler sheaves and the base of the evaporating tower.

EXTRUSION SYSTEM

Photograph (right) shows the takeup end of a complete extrusion line with nylon head tuber. Tension control stand and dual reel continuous takeup machine are shown in the left foreground. Driven letoff stand and tension stand are shown in background beyond the tuber.

ARE YOU looking for ways and means of cutting production costs in your wire insulating operations? The largest wire mills in the world have found the answer to this problem by installing wire insulating systems and machines designed and built by IOI.

Whether your operations involve the extrusion of plastic tubing or strand, or the plastic jacketing of wire, cord or cable, or solution coating with lacquer, enamels, organosols or plastisols, there's an IOI unit of advanced design that will increase your production, cut your labor requirements and decrease your production costs.

The lacquering unit and extrusion system pictured are typical of IOI's developments in advanced engineering on sound basic principles, efficient design and rugged construction.

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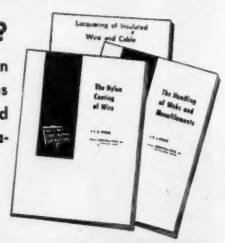

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BECAUSE YOU
NEED STEEL

Making wire that will work for our customers . . . that's our job at Continental. These wire users know when they place their wire requirements with us that they can depend on Continental's interest and ability to supply them with exactly what they need in temper, finish, or special shapes. They know they can expect the type of close, personal service that often results in the saving of both time and money. That's why year after year they select Continental as their chief source of supply for wire.

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Many Continental wire customers save money, add sales appeal to their products by using the right shaped wire for basic parts or exterior trim. Providing wire in special shapes is another Continental service for its customers.

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Steel saved civilization at Vienna

MODERN history begins with the record of conflict between Christians and Moslems--six centuries of wars that opened with the Crusades and saw the Turks capture Constantinople in 1453.

More than 100,000 Turkish janizaries and cavalry besieged Vienna in 1683. For two months, to quote the diary of an eye witness, "The enemy continued playing their cannon and granadoes. But the city walls were strong, Christian cannon were bigger and more numerous and ammunition more plentiful." Finally came a day when the officer's journal reported, "The enemy did not play their cannon so fast. It was confirmed that they had no great provision of bullets, inasmuch as they shot back not only our bullets, but also pummels of swords and all sorts of iron and stones."

At last a great Christian relief army was assembled. "They made an attack in the best order that ever army did. The enemy, forced always to give back, were put all into confusion. They betook themselves to flight, leaving all their provisions, ammunition, cannons and tents --the greatest part rendered unfit for farther use by our great guns."

Never again did the Turks seriously menace Christendom. Western civilization had been saved once more by its supremacy in the use of iron and steel. To aid our survival America's free private industry is producing steel at the highest rate ever known--and still expanding. The question remains--Will America use enough of this tremendous steel production to guarantee the continued supremacy of Western, Christian civilization?---We believe the answer is yes!

YOUR SCRAP IS NEEDED — YOUNGSTOWN

The Youngstown Sheet and Tube Company

General Offices--Youngstown 1, Ohio

Export Offices--500 Fifth Avenue, New York

MANUFACTURERS OF CARBON ALLOY AND YOLOY STEELS

The steel industry is using all its resources to produce more steel, but it needs your help and needs it now. Turn in your scrap, through your regular sources, at the earliest possible moment.

That's a funny question, and one which probably wouldn't have been asked for the next twenty years if Magicoat* hadn't been discovered.

Ever since the first wire was drawn, acid pickling has been accepted as a necessary evil, but there was always the hope that some day, somehow, a better way could be found for de-scaling steel rod and wire. A better way HAS been found.

There is nothing new about scale breakers, or mechanical de-scaling of rod and wire. It has been tried many times, with results varying from fair to poor. The idea of mechanical de-scaling is excellent, but it needs one thing to make it really practical, and that is the proper coating. Magicoat fills this requirement to perfection.

Magicoat requires a uniform surface condition which may be obtained in one of three ways:

1. By controlled atmosphere annealing.
2. By modern methods of patenting.
3. By mechanical de-scaling.

For those wire mills not equipped with the most up-to-date annealing and patenting systems, we recommend the scale breaker for removing the loose, flaky mill scale, and certain difficult patenting scales.

Wouldn't you like to know more about the Magicoat process? Just drop us a line, tell us the type of wire you are drawing, and we'll be glad to tell you how Magicoat can rid your mill of acid.

If you'd like us to build your scale breaker, we'd be glad to. Or, we'll tell you how to build your own.

*Pat. Pending

A Magnus Specialized Product

Metal Coating Division . . . .

MAGNUS CHEMICAL CO., INC.

SOUTH AVENUE • GARWOOD, N. J.

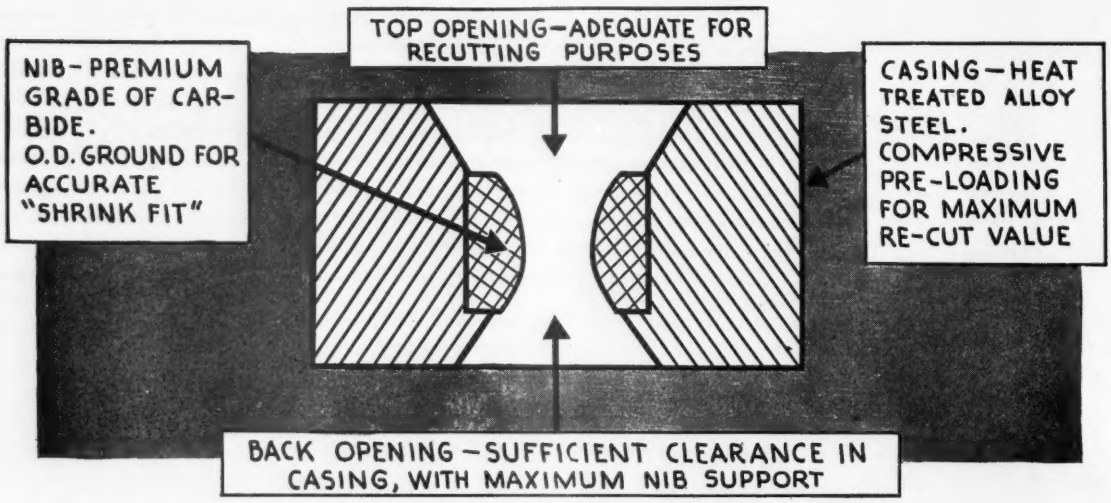
IMPORTANT ANNOUNCEMENT!

A SUGGESTED METHOD BY WHICH YOU CAN CONSERVE STRATEGIC MATERIALS

An intelligent approach to conservation in wire drawing is to use tungsten carbide dies from which you can secure maximum performance. EASTERN CARBIDE'S DIES give you this service.

Your wire is a strategic material. Dies contain materials to be conserved. Our dies are designed to last longer, to draw better wire and give higher production. For the reasons why they are best for you, study the illustration below. They'll give you superior performance, save you money, conserve critical metals.

EASTERN CARBIDE'S dies can be purchased semi-finished at the standard price of rough-drilled dies. They require only light sizing and polishing.


TOP OPENING—ADEQUATE FOR RECUTTING PURPOSES
NIB—PREMIUM GRADE OF CARBIDE. O.D. GROUND FOR ACCURATE "SHRINK FIT"
CASING—HEAT TREATED ALLOY STEEL. COMPRESSIVE PRE-LOADING FOR MAXIMUM RE-CUT VALUE
BACK OPENING—SUFFICIENT CLEARANCE IN CASING, WITH MAXIMUM NIB SUPPORT

We also supply a full line of carbide tooling for the cold-heading industry.

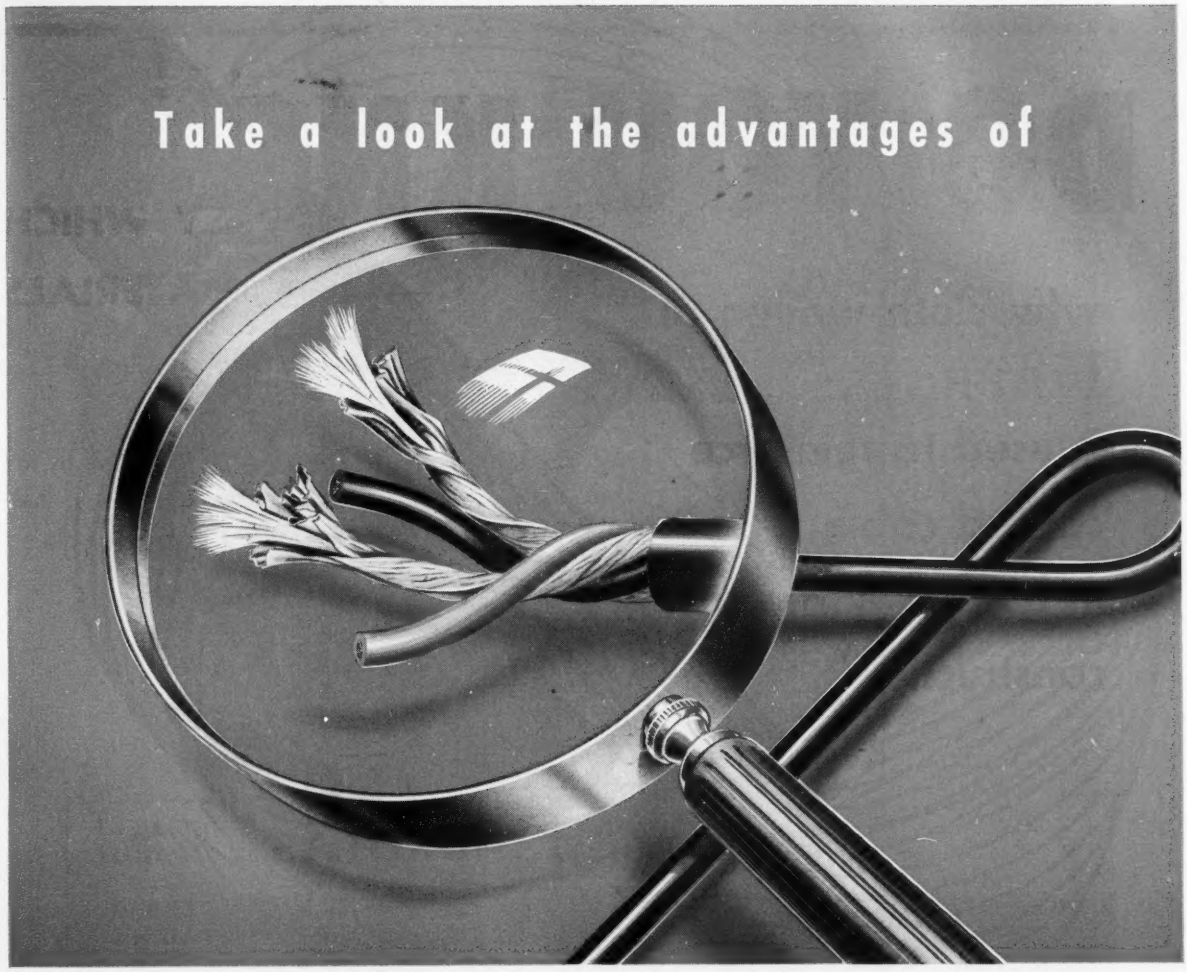
Let us tell you how and why our dies conserve materials and save you money.

EASTERN CARBIDE CORPORATION

TELEPHONE: NEW ROCHELLE 2-6630

909 MAIN STREET **NEW ROCHELLE, N. Y.**

Complete Carbide Sales and Service



Textilene GLASCOR®

(FIBERGLAS-CENTERED FILLERS)

- **Better stripping action**
- **Greater uniformity**
- **More flexibility**
- **Wide range of tensile strengths without any change in bulk**

These new revolutionary fillers with a Fiberglas core were developed by Twitchell with the help of Owens-Corning. Textilene GLASCOR has been approved for portable cords and is now being used by many large manufacturers. Talk to Twitchell about its specially developed fillers for nonmetallic, shipboard, underground and varnished cambric cables, and wire rope. Supplied untreated or impregnated to resist moisture, fungus, mildew and dry rot *— in endless length packages.*

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Paper Products for the Wire Industry

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DO YOU KNOW

why cloth woven of FIBERGLAS* *Yarns* is used to reinforce coated cable tape in leaded cable construction?

FIBERGLAS *Yarns*

Along with the entire electrical industry, Owens-Corning Fiberglas Corporation is faced with increasing civilian and military demands. While we cannot now supply all the materials our customers want, we are substantially increasing our production facilities. Therefore, we believe it to your future best interests to consider this new and recommended use of Fiberglas yarns.

GIVE GREATER STRENGTH

SAVE SPACE, REDUCE WEIGHT
(allow thinner lead sheath)

RESIST ROT . . . ARE PERMANENT

ARE TEAR-RESISTANT

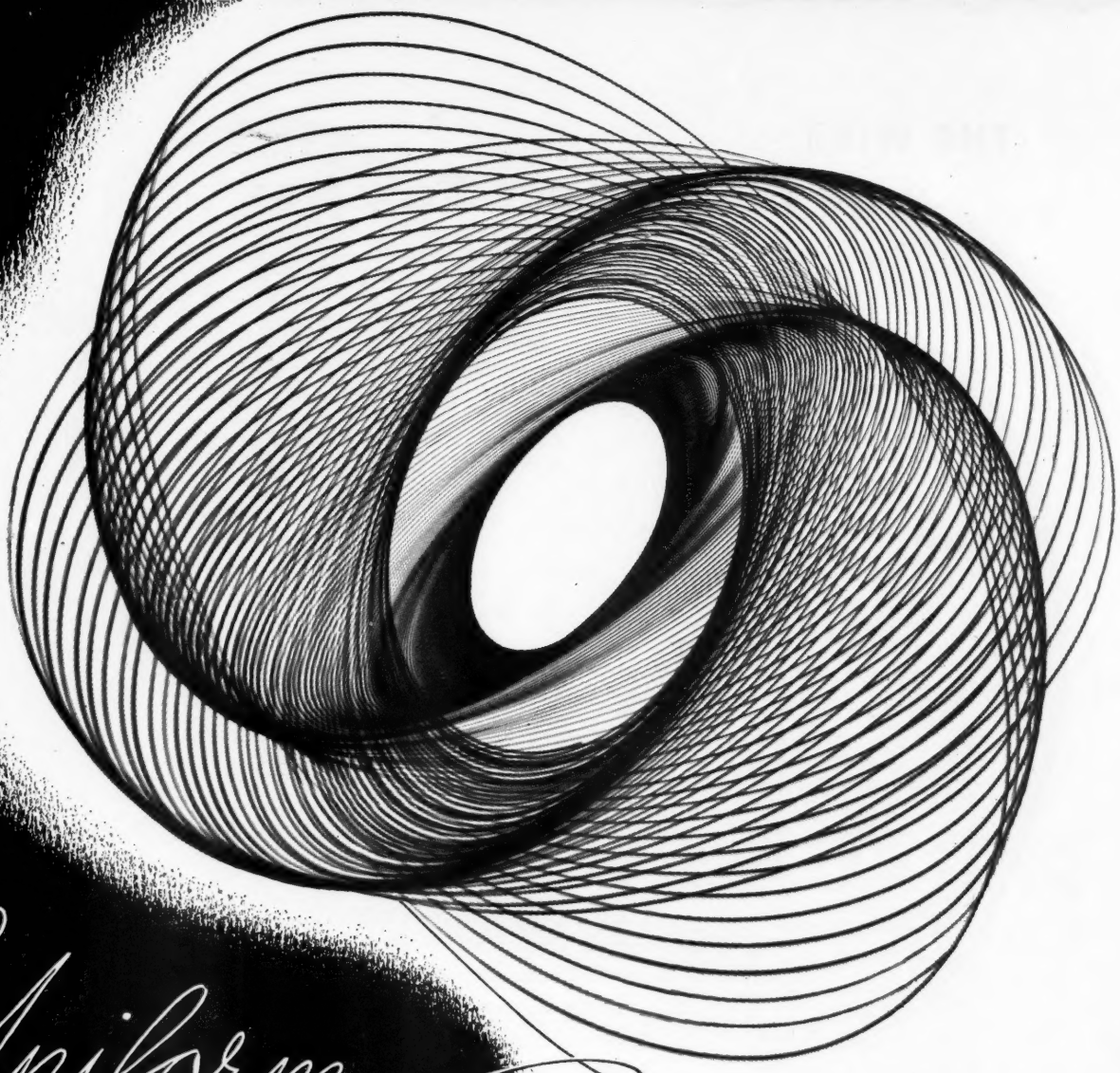
ARE LOW IN COST!

*Fiberglas is the trade-mark (Reg. U. S. Pat. Off.) of Owens-Corning Fiberglas Corporation for a variety of products made of or with glass fibers.

For complete information about Fiberglas yarn for this and other uses, write Owens-Corning Fiberglas Corporation, Electrical Sales Division, Dept. 875, 16 East 56th Street, New York 22, N. Y.

OWENS-CORNING FIBERGLAS *Yarns*

FIBERGLAS IS IN YOUR LIFE . . . FOR GOOD!



Uniform

for precision forming and coiling

Pittsburgh Oil Tempered Spring Wire

Your precision forming and coiling operations will be easier, more economical, with Pittsburgh Oil Tempered Spring Wire because it has the uniformity to give you trouble-free performance day after day. Severe bends are easy—it withstands high stresses and resists wear and abrasion.

Each coil of Pittsburgh Oil Tempered Spring Wire has uniform qualities of toughness, tensile strength, reduction of area, and hardness plus superior straightness that will give you ease of operation and excellent finished products.

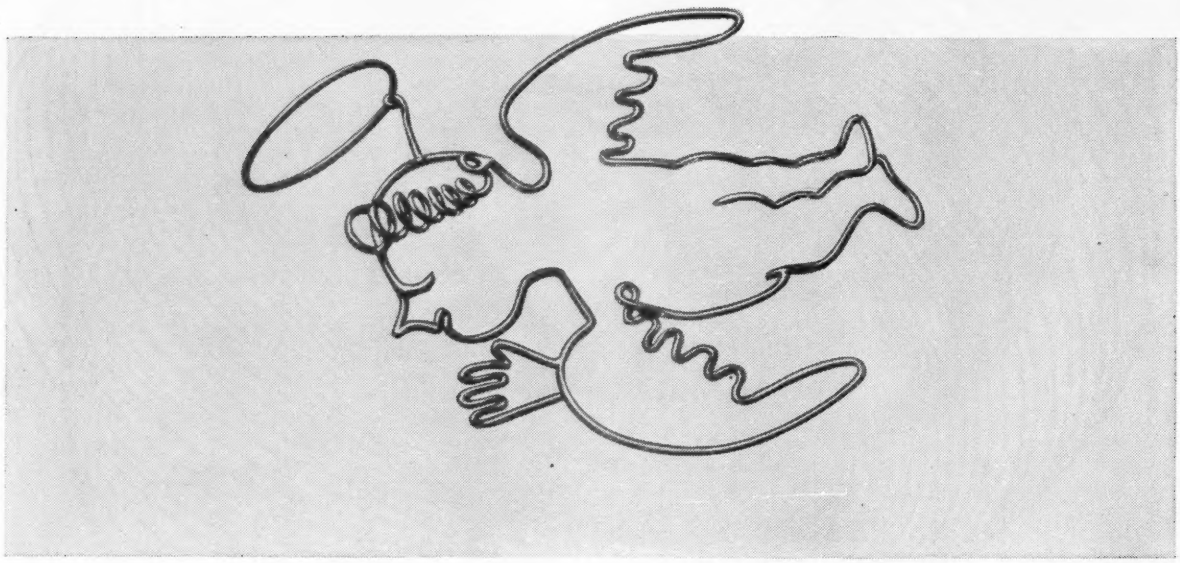
Pittsburgh Oil Tempered Spring Wire is furnished in a complete range of sizes from .062″ through .500″ diameter. For information write department WWP, Pittsburgh Steel Company, Pittsburgh 30, Pa.

The Steel Industry Needs Scrap—Keep it Moving

Pittsburgh Wire

a product of Pittsburgh Steel Company

THE WIRE WITH THE **Perfect Temper**



Many a production man thinks Chase engineers are "angels" for producing wire that unwinds from the coil smoothly and without twist. It's uniform in gauge, temper and color; has superior heading or flowing characteristics.

There's a Chase wire for most applications. Write for folder "Chase Cold-Heading Extruded Brass and Copper Alloy Wire."

"DO" orders: We can make favorable mill deliveries on some sizes and forms of brass and copper for defense orders. In many cases our warehouses can ship from stock.

● **CHASE TECHNICAL SERVICE**
Our metallurgical engineers are familiar with military specifications for brass and copper for ordnance components, and will be glad to consult with you on the selection of these metals for defense orders.

Chase **BRASS & COPPER**

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Baltimore	Denver†	Milwaukee	Pittsburgh	Waterbury
Boston	Detroit	Minneapolis	Providence	
Chicago	Houston†	Newark	Rochester†	(†sales
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ANNOUNCES

"REDSKIN" COPPER-COATING COMPOUND

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3. **UNIFORMITY and QUALITY are GUARANTEED**
4. **SIMPLE to INSTALL; SIMPLE to OPERATE**
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6. **ONE CHEMICAL; DISSOLVES INSTANTANEOUSLY**
7. **BRIGHT COPPER COLOR with SUPERIOR ADHESION**

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Steelskin BRAND
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R. H. MILLER COMPANY, INC.
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Wire · Tubing · Stamping · Deep Drawing Soaps and Compounds

It's Terrific!! Stupendous!!

The 1951 Program of the

ANNUAL CONVENTION of THE WIRE ASSOCIATION

***Your attendance at this Convention is a MUST. The program is packed with technical papers of exceptional value and interest. We want to see you there! You'll profit by being there! So make your plans now to attend. It will be bigger and better than ever, full of information you can use when you get back to the mill. You must come and participate in* this year's Convention doings.**

For you FERROUS men there will be papers on dry cleaning of rods and wire, new pickling developments, on how to make better cold heading wire, on bolt and nut manufacture, on thread rolling processes, on galvanizing blankets and on patenting, cleaning and coating.

For you NON-FERROUS men, there will be papers on signal corps wire, on new copper alloys, on high nickel alloy wires, on magnet wire, on combustion of wire enameling fumes, on wire coatings, on preparation of PVC compounds and on finishes for electric wire and cable.

You'll want to attend the Annual Wire Association Luncheon, at which Sidney Rolle will deliver the Mordica Memorial Lecture on "The Fabrication of Copper Wire".

You'll want to attend that celebrated feature on Wednesday evening—the annual Stag Smoker-Dinner. It will be full of fun and fine entertainment.

And you'll not want to miss that Plant Inspection Trip on Thursday—an all-day tour of the Joliet Mills of the American Steel and Wire Company—one of the finest wire mills in the country.

The complete program will be published in the August issue.

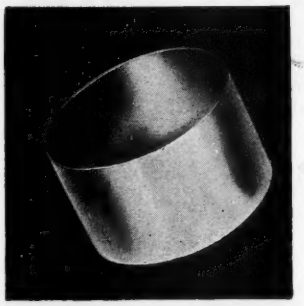
MAKE YOUR PLANS NOW TO ATTEND. ALL WIRE MEN ARE CORDIALLY INVITED. IF YOU DO NOT RECEIVE A HOTEL RESERVATION CARD SHORTLY, PLEASE WRITE FOR ONE.

The time: October 22-25. The place: LaSalle Hotel, Chicago, Ill.

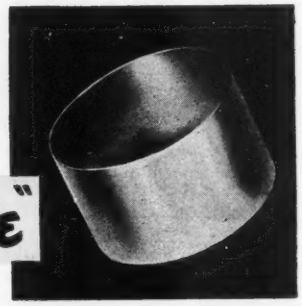
THE WIRE ASSOCIATION

RICHARD E. BROWN, Executive Secretary

300 MAIN STREET **STAMFORD, CONN.**



This one is ordinary drawing brass



This one is "Formbrite"

And here's the difference

Formbrite is a trade mark of The American Brass Company designating copper-base alloys of exceptionally fine grain, combining unusual polishing characteristics with good strength and hardness, plus excellent ductility.

Now let's take 'em one by one. Formbrite is produced in sheet, strip, rod, wire and seamless tubes in most of the copper-zinc alloys. The process is applicable to practically any copper-base metal.

Its superfine grain is the result of special rolling or drawing and annealing techniques.

Formbrite in sheet and strip form is an excellent pressroom metal. It costs no more than ordinary drawing brass—yet it is harder, stronger and much more resistant to scratching and abrasion.

Despite its strength and "springiness," the ductility of Formbrite in deep-drawing operations will amaze you.

And here's the payoff: Parts made of Formbrite polish so easily and so quickly that often only a color buff is needed for plating.

Skeptical? Of course! So let's prove it. Write for the two cupped samples illustrated above in full size. Compare the finish, then try them out, side by side, on your own buffing or polishing wheels.

Address The American Brass Company, General Offices, Waterbury 20, Connecticut. 5199

ANACONDA

the name to remember in

COPPER·BRASS·BRONZE

PLASTICS MACHINERY BULLETIN

Reporting News and Machine Design Developments

IN BUSINESS TO **NRM** REDUCE YOUR COSTS

NYLON—New NRM Extruders handle Nylon, other plastics

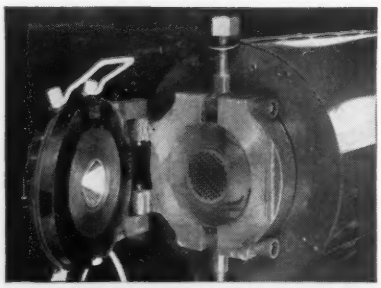
New NRM electrically heated Extruders offer you a valuable plus—with them you can extrude Nylon as well as a variety of other plastics in various forms. With versatile NRM Extruders, producers often avoid purchase of extra equipment.

Standard NRM Models of the new design can be adapted simply and easily in the field, by removing the standard die or crosshead, and substituting a special Nylon die or crosshead. The steps required are shown below.

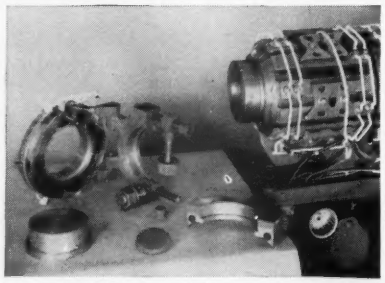
NRM's Nylon Extruders range from a completely self-contained 1″-screw bench model, up through 3½″-screw machines, and larger, if desired. They are currently being used for wire covering and a variety of other applications.

Write for full information to Plastics Machinery Division, National Rubber Machinery Company, Akron 8, Ohio.

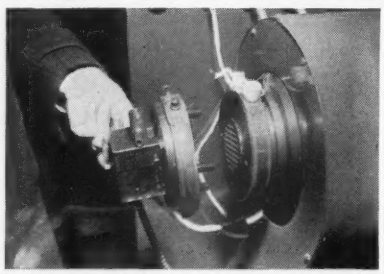
1. New standard 2½″ electrically heated NRM Extruder, as furnished for general plastics materials. Two blowers provide balanced heat control.



2. Die gate swings open easily on hinges. The new front flange is split for easy removal.



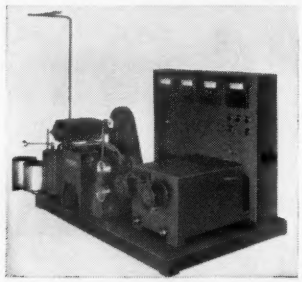
3. Standard die gate, subdie, strainer plate, and front end removed from extruder. Note cylinder heater shells and blower for balanced heat control.



4. Nylon crosshead or die is positioned for bolting directly to cylinder face. This avoids critical temperature variations from heat loss of flange.

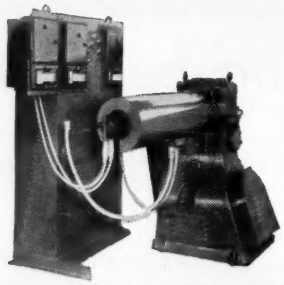
5. NRM Extruder set up for covering wire with Nylon. Wire is fed down through preheater to extruder. Covered wire is cooled in water tank under extruder head, is then ready for winding.

Self-contained Nylon Extruder



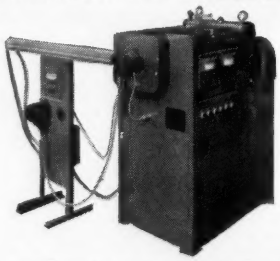
This 1″ NRM bench model is a completely self-contained unit for Nylon covering of wire, sizes B & S Gauge #24 to #36. Unit includes electrically heated extruder, let-off, cooling tank, spark tester, dual capstan, dual take-up, and instrument and control cabinet.

Extrudes Nylon on steel ribbon



Wide application is characteristic of NRM Extruders. This 2½″ model is used to cover a thin steel ribbon with Nylon to produce corset stays. In this unit feed is horizontal. Replacement of heads is simple matter.

Nylon Extruder with horizontal feed



NRM 1½″ Extruder arranged for horizontal feed of wire through preheater. Only NRM Extruders provide balanced heat control, with absolute control over frictional heat. This feature is self-contained, requires no pipe connections for compressed air, oil, or water.

NATIONAL RUBBER MACHINERY CO. General Offices & Engineering Laboratories Akron 8, Ohio

PLANTS at Akron and Columbiana, Ohio and Clifton, N. J.
AGENTS East: National Rubber Machinery Co., Clifton, N. J.
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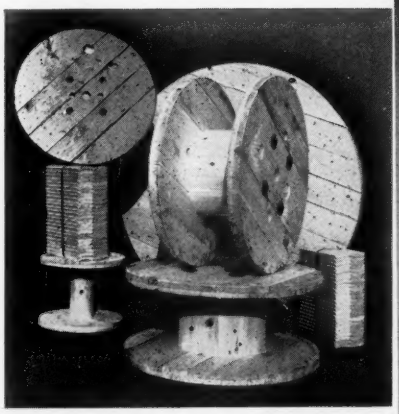
Creative Engineering

OVER NIGHT

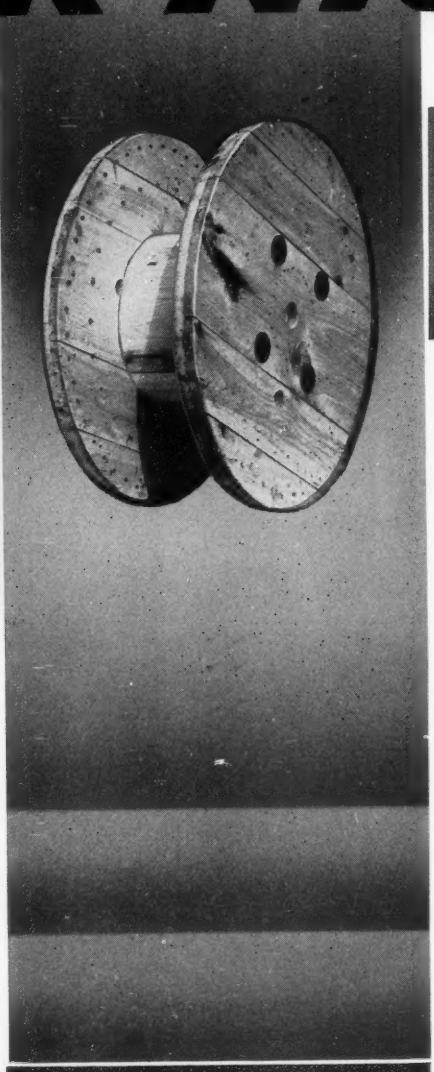


BRIDGE SHIPPING AND SHOP REELS

are furnished knocked down or assembled in sizes of 12" to 96" in diameter.

Standard types are carried in stock, but we can make reels to your specifications on short notice.

ALSO, REEL HEADS for STEEL DRUMS. Streamlined production methods give you the finest possible reels at the lowest cost.



BRIDGE REELS ARE DELIVERED BY TRUCK TO YOUR DOOR WITHIN A RADIUS OF 200 MILES.

And overnight, if you need them badly. For points beyond, fast rail service will reach cities as far away as St. Louis the morning of the 4th or 5th day. Even better deliveries to destinations like Buffalo and Cleveland. If shipped via fast LCL rail service, they will be delivered to your door to some points *at no extra* cost.

Look into BRIDGE'S unique distribution service and let us show you what we can do for you.

WOOD REELS
RETURNABLE AND NON-RETURNABLE

You are invited to visit our plant and see why our reels are well-made and low in cost.

BRIDGE
MANUFACTURING CO.
HAZARDVILLE, CONN.
Phone Thompsonville, 3375

Let us quote you on your reel needs. Send us your specifications. They will be given prompt attention.

For the FINEST Dies...

Specify

DIES... TOOLS... WEAR PARTS... BLANKS...

TELEPHONES: FACTORY and BRANCHES

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BOSTON Decatur 2-2332	DALLAS Riverside 5138	HARTFORD 32-5197	MILWAUKEE Division 2-0204	PITTSBURGH Hiland 1-8548	SEATTLE Elliott 0052
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CHICAGO Ambassador 2-1000	DENVER Tabor 0444	INDIANAPOLIS Riley 3946	NEWARK Mitchell 2-8532	ROCKFORD Enterprise 2504	WAUKEGAN Ontario 5220
		KANSAS CITY Baltimore 1700	NEW YORK Flushing 3-0027	ST. LOUIS Newsted 3110	

The Wire Outlook

Retail sales have shown a steady decline since February, household appliances, television sets and automobiles being the items principally affected. Inventories of consumer goods have been accumulating. Industrial business generally has been somewhat off. The pace of home construction has lessened.

Much of this is attributed to the tightened credit regulations on retail sales. The industrial decline is the result of material shortages, high prices and failure of "war" orders to supplant the products that can't be made for civilian consumption.

Great pressure is being exerted from many quarters for the easing of credits and controls, except on a few items. While soft spots in business will be apparent until defense orders are more widely distributed, it is our opinion that credits should not be eased. All it could do would be to accelerate the inflationary pace, bad enough now due to non-essential government spending.

The Controlled Materials Plan, that became effective on July 1st, will probably be extended by October 1st to cover all industries using steel, copper and aluminum. It has been applied only to defense-supporting industries, leaving the free supply of these metals uncontrolled. This has made it tough for small users of the metals, whose procurement facilities are not as good as those of their big brothers.

Deflation, recession or depression on a big scale are not in sight, nor is runaway inflation likely. Business generally will be good, probably better as the second half of the year progresses. The price wars that have been sweeping the country are not expected to last longer than the over-large inventories of goods ,the principal underlying reason for them. Taxes will only be advanced a little this year, but probably be increased substantially in 1952.

While layoffs and other dislocations will continue during the period of shortages, as adjustments are being made to defense work, employment is high—some 61 millions —and is expected to continue so. Some reports have been current that there will be plenty of steel before the end of the year, but new production facilities for steel and aluminum are not likely to ease conditions until well into 1952.

Canada adopted a controlled materials plan similar to our own on July 1st and her industrialists will be making application here for metals to be used for defense work on a basis comparable to our defense plants. Many of these applications for allotments have already been submitted to Washington.

The potential scrap supply is great, but history is repeating itself in the difficulty being encountered in getting it back to where it is needed. If more scrap is not forthcoming on a regular basis, there are bound to be disruptions in basic metal production.

Heavy spring rains in the Midwest raised the expectations of big hay crops, increasing the demand for baling wire and bale ties. The supply has become very short. Rated orders for carbon and alloy wires have been on the increase, but so far the volume has not exceeded the "set-aside" amounts, which run 50%. More rigid controls of rod distribution through higher set-asides and allocations to wire drawers is tightening the supply. Orders for aircraft wire are on the increase. While there has been some slackening in automobile demand for bolts, nuts and rivets, the overall demand is heavier than most suppliers can handle. All types of wire may be said to be in active demand, with little prospect of buyers getting all they want.

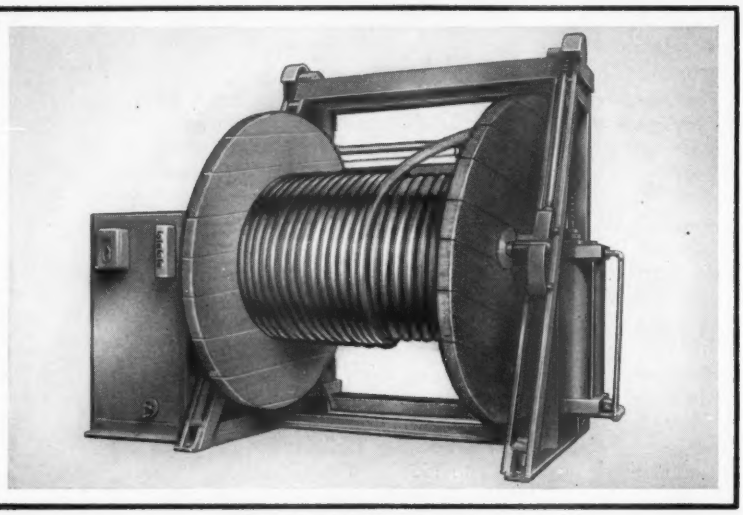
It is interesting to note how our steel capacity has grown. At the start of World War I it was something over 55,000,000 tons; World War II began with a capacity of 88,000,000 tons; the Korean War's start found us with a 100,000,000 ton capacity; this year we should produce over 110,000,000 tons; and by the end of 1952, 125,000,000 tons should be pouring out of our steelmaking furnaces.

By this Spring our annual national income had zoomed to a rate of $314 billions, $42 billions higher than a year ago. This sounds impressive but most of it is due to inflation. The dollar is buying so much less that the increase in real wealth has not been as marked as the rosy figures indicate. The increase in steel production is an increase in real wealth. The national dollar income is a horse of another color—perhaps good looking, but unsound.

—from the Editor's Desk

JLE HEAVY DUTY REEL TAKE-UP

AN IMPROVED, STANDARD TAKE UP FOR REELING EXTRA-HEAVY CABLE



The Machine Illustrated

Reel Capacity - 36" to 72" Reel Diameter
Reel Weight - 18,000# with 100 P.S.I. Line Pressure
- 11,000# with 60 P.S.I. Line Pressure
Drive - Motor Drive with - Variable-speed and slip clutch units.

★

Following Drives are Available:

——Motor-Drive-6 types——

Constant - Reel - Shaft Speed, Fixed
Constant - Reel - Shaft Speed, Adjustable
Constant - Wire - Speed
Constant - Speed Drive, Slip - Clutch
Variable - Speed Drive, Slip - Clutch
Constant - Wire Tension, Slip - Clutch

——External-Drive-3 types——

Slip - Belt Drive
Constant - Speed Drive, Slip - Clutch
Constant - Wire - Tension, Slip - Clutch

★

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WIRE AND WIRE PRODUCTS

A monthly publication devoted to the production of Wire, Rod and Strip.
DRAWING — ROLLING — EXTRUDING — FORMING — FABRICATING

Vol. 26 JULY, 1951 No. 7

The Southern Regional Meeting

by Edmund D. Sickels, Editor

Wire and Wire Products
Stamford, Conn.

Something of the atmosphere of an annual convention pervaded the **Southern Regional Meeting** of the **Wire Association,** which met in Atlanta on May 17th and 18th at the Henry Grady Hotel. There were men from every section of the United States and from Canada and England. Many of the old guard arrived during the preceeding day, giving plenty of opportunity to visit and compare notes before the sessions got under way.

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Ordinarily the directors of the Association meet in New York in the Spring, but this year the semi-annual meeting of this body convened in Atlanta. In the course of business the Nominating Committee proposed the re-election of the present officers for another year, and **Fred M. Crapo**, President, **John A. Moritz**, Vice President, **Ralph B. Roth**, Vice President and **Richard E. Brown**, Executive Secretary and Treasurer, were unanimously re-elected for the same offices. All directors were present except **H. B. Carnahan** of the Canada Wire and Cable Co., Ltd. **Robert C. Peterson** of the Thompson Wire Company was formally seated as a new director.

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The Program Committee chairmen, consisting of **Ralph B. Roth**, General Chairman, **John A. Moritz**, Chairman of the Ferrous Program Committee and **Dr. Bruce W. Gonser**, Chairman of the Non-Ferrous Program Committee, made their respective reports and announced that their programs had been completed. The technical papers now scheduled represent one of the finest and most interesting so far assembled. **Eber J. Hubbard, Jr.**, Chairman of the Entertainment Committee, while not able to be present, had previously tendered a report indicating that his end of the Program was well in hand and would measure up to the old high standards for the Smoker-Dinner show. Medal awards were chosen by ballot for outstanding 1950 papers, announcements regarding which will be made in October. Among the other things discussed by the Board of Directors was an offer by **Kenneth B. Lewis** to contribute his services in the writing of a new book to be called: "Steel Wire in America," that the Board decided should be sponsored by the Wire Association. Due to the necessity for financing the book prior to publication, it was determined to invite certain of the larger industrial companies to participate in this underwriting to the extent of $5,000. Each company subscribing will receive a number of copies according to the size of the subscription and the subscribers' names will be published in the front of the book as being the concerns through whose sponsorship the publishing of the book was made possible.

Clem McGowan, Regional Conference Chairman and Banquet Toastmaster, tells of the thrill he experienced as his dreams come true — that of holding a Wire Association meeting in Atlanta. Clem McGowan through his untiring efforts achieved success which culminated in a unique Southern Regional Wire Association Conference that will long be remembered for its Southern hospitality and Georgia barbecue.

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Following the Meeting, the Directors entertained members of the Association at a luncheon. President Crapo welcomed the group and commended **Clem L. McGowan** for his splendid work in organizing the Atlanta meeting, complimenting him

Officers, Directors and guests seated at the head tables at the Wire Association Banquet at Atlanta.

for an unusual honor that had been accorded him for the period of this meeting—his appointment by his Company as Honorary President of the Atlantic Steel Company. Clem responded in his own inimitable fashion, pointing out that being Chairman and having this honor had merely enabled him to enlist the services of other members of his Company, including those of **R. S. Lynch,** President and **J. H. Girdler,** Vice President.

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Among the distinguished guests at this luncheon, besides Mr. Lynch, was **Tom Girdler,** Chairman of the Board of the Republic Steel Corporation. Mr. Girdler, in his younger days identified with Atlantic Steel, felt very much at home here. It happening to be his seventy-fourth birthday, (he looked more like fifty-four), a birthday cake was brought in and presented while the gathering sang "Happy Birthday" and "For He's a Jolly Good Fellow". In his talk he traced some interesting changes that the steel industry had undergone since he started his career in it.

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With "Governor" **William M. Dull,** Superintendent of Wire Mills, Sheffield Steel's Houston plant as Chairman, the technical sessions opened in the afternoon with two splendid papers—the first by **A. D. Gordon,** Metallurgist for Republic Steel Company at Gadsden, who talked on "Wire Mill Practices at Republic Steel" and the second by **K. P. Campbell,** Metallurgist for Sheffield Steel Company at Houston, who discussed "The Applications of Semi-Killed Steel in the Manufacture of Wire and Wire Products". A lively discussion followed the presentations. Both papers are printed in full elsewhere in this issue of WIRE AND WIRE PRODUCTS.

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Preceeding the banquet in the evening, the members, their wives and guests gathered for a convivial and gay cocktail hour, to which the **R. H. Miller Company** and the **Standard Industrial Compounds Company,** with their respective heads, **Chuck Orr** and **Van Miller** played host. The Dixie Ball Room, beautifully and colorfully decorated, was filled to capacity. Clem McGowan, Program Chairman, Honorary President of Atlantic Steel Company and Director of the Wire Association, made the opening address of welcome, telling how his dream of many years, a Wire Association meeting in Atlanta, had finally been realized. He introduced the persons seated at the head tables and called upon President Crapo. Mr. Crapo voiced the sentiments of the gathering in expressing the pleasure that everyone had in being at Atlanta, particularly in this Golden Anniversary year of the Atlantic Steel Com-

Figure 1 — General View of the Atlantic Steel Company's Aggregation of Buildings that House their Varied Operations.

pany's progressive career. This meeting was part of a series of events arranged in celebration of this fiftieth milestone. During the course of the dinner, it should be mentioned, Conferedate bills were passed out to everyone from above the Mason and Dixon Line, which tied in with a statement printed at the bottom of the menus saying: "Save your Confederate money; de South gwine rise again".

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The principal address was made by Atlantic's president, **Robert S. Lynch,** who traced the industrial development of the South, noted its richness in natural resources, its population growth and it opportunities for expansion. Among the points brought out by Mr. Lynch was the fact that the South's present steel capacity is 4,900,000 tons or 4.7% of the present National capacity. When present plans are completed the South will have a capacity of 6,000,000 tons per year by 1953. In spite of these expansion projects, the South's needs for steel call for approximately 8,000,000 tons annually. He pointed out that the Southeast is looming larger in the National steel picture just as it is in the overall industrial picture. The Atlantic Steel Company themselves are adding 100,000 tons to their present capacity of 200,000 tons through the addition of a new electric furnace. The South, Mr. Lynch stated, has been making tremenduous strides toward a stronger and better planned economy since 1910 and the trend in industry growth has been faster in the South than in the rest of the Nation as a whole. He called attention to the fact that the South is favorably situated with respect to overseas ores, such as might be brought in from Venezuela and Liberia, which ores are now coming into the country through the ports of Baltimore and Mobile. He also noted that in the South, due to climatic conditions, the cost of construction is low, that production and transportation costs are relatively cheap, that there is a plentiful supply of water for industrial uses, water for transportation and a growing volume of electric power. As to raw materials he stated that the South has an enormous supply of iron ore, coal and timber and many excellent sites for the location of industry are available. With all these natural advantages Mr. Lynch was strongly of the opinion that the high rate of expansion for the metal industries in this region is likely to be maintained. He concluded his address by saying:

"For what has gone before and what is going to come, the Southeast is fortunate indeed to be able to look to men like Clem McGowan. It is in tribute to him that this meeting of the Wire Association is being held here in Atlanta. The tribute, I can tell you, is richly deserved.

Here, I would like to mention the importance of the individual. Our industry, the South, and the nation have become great and prospered only through the efforts, ingenuity, skill, intelligence, courage, drive, and vision of the individual. Clem McGowan, a veteran of industry—one of the unsung heros—is such an individual. Clem was literally born into the wire business. His boyhood was spent within fifty miles of Pittsburgh, and his grandfather, father, six uncles and a cousin all worked in the wire and nail mills of the Hartman Steel Company. He, too, elected to follow the profession of "wire-making", and he obtained his first job at the Pittsburgh Wire Company. Because of the widespread practice of seasonal shut-downs in those days, Clem subsequently became employed at the Ohio River Nail Company, Belfont Iron Works, Kokomo Nail and Brad Company, and the Keystone Fence Company.

In 1906, he came to Atlantic Steel Company and accepted a temporary job as tool maker in the 3-month old Nail Mill. Shortly thereafter, he was promoted to assistant foreman, and in 1908 was made superintendent of the Wire Mills. The general superintendent of Atlantic Steel Company made this appointment at that; he was Mr. Tom M. Girdler, Chairman of the Board, Republic Steel Corporation.

Under Clem's supervision, our Wire Departments' program has been one of constant modernization and improvement. Within the past two years, our Wire Mills have been completely modernized with the installation of new galvanizing equipment, annealing furnaces, wire drawing and nail machines—and we are just completing installation of new Ransohoff cleaning equipment. Production figures have continued upward—last year, the Wire Mills broke five all-time annual production records.

In all this, Clem McGowan has played an important part and, to my mind, he has "reached that pinnacle which many men have sought, but few have attained." In addition to being our oldest superintendent from the point of service, he has for a long number of years been considered as dean of men in the steel plant, and not only at his job, but in religious and other social circles, he is respected for his authority, admired for his personality and loved for his character.

I join you in tribute to Clem McGowan, whom we are proud to have as an associate."

Mr. Lynch then asked the assemblage to stand and sing "When Irish Eyes Are Smiling". The tribute was so beautifully and sincerely tendered that few were the eyes that were dry at its close. Handkerchiefs were freely in evidence when the gathering adjourned. Clem, dean of wire men, has spent fifty-seven years in the industry, the last forty-five of which have been with Atlantic Steel.

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During the day the ladies who had accompanied their husbands to

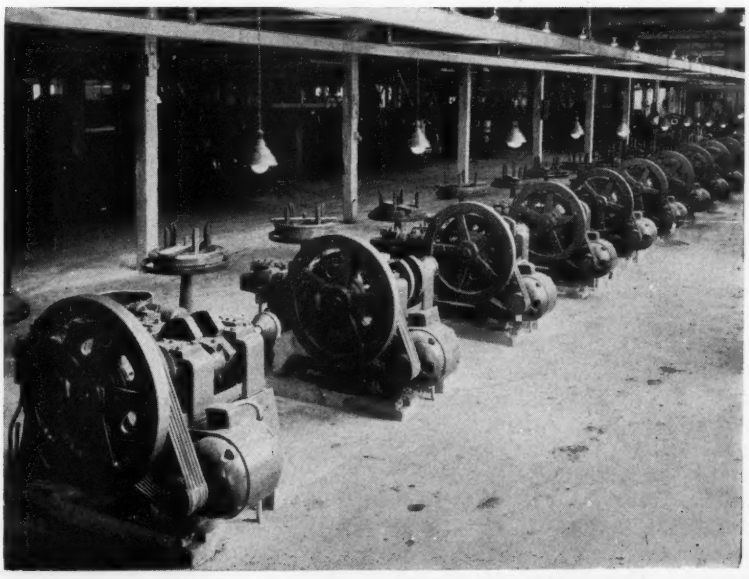

Figure 2 — View of Nail Room Showing Some New Glader Nail Machines

Figure 3 — Section of Atlantic's Wire Mill Showing Battery of New Vaughn Drawing Machines.

Atlanta, some thirty-five, were taken on a tour of the city's points of interest, winding up at the East Lake Country Club for a luncheon given to them by the Atlantic Steel Company, with "the Vice President of McGowan Company," **Mrs. McGowan**, as hostess. Six other Atlanta ladies, including Mrs. Lynch, served as hostesses, guides and chauffeurs for the day.

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Clem and several of the boys wired to John Rigby, who had been in this country since February and who was sailing for England on the 18th, expressing regret at his inability to be with us in Atlanta. John responded with greetings and best wishes for the success of the meeting, adding: "Look to the West; the land is brighter than ever."

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On Thursday morning, with **C. J. Beneke** of the Reynolds Metals Company, Louisville, Ky., as Chairman, **Joseph H. Girdler**, Vice President in charge of Operations for Atlantic Steel, delivered a splendid paper on "Safety at Atlantic Steel". The text of Mr. Girdler's paper was enlivened and illustrated by a skit in which **Charles Jones**, Foreman of the Maintenance Department and two other members of the Accident Prevention Committee, acted out some of the difficulties encountered in selling employees the idea of wearing safety glasses. The discussion following the paper brought out much valuable information on safety practices in different mills in the United States and Canada.

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After an early lunch, busses left at 12:30 for Atlantic Steel for the plant inspection tour. Guides took the party through the entire plant in groups of six, winding up with a visit to the wire mill. This last of the many and varied operations of Atlantic Steel was most interesting, particularly as through the last two years much new equipment has been added—new Vaughn wire drawing machines, new Glader nail machines, a new strand galvanizing unit, and the latest addition, a Ransohoff nail cleaning machine. One of the things that impressed the visitors favorably was the cleanliness and orderliness in evidence throughout the plant. Clem admitted that a few quarts of paint had been bought and used for the occasion, but called attention to the fact that good-housekeeping had been made an established policy at Atlantic and what the guests saw was the normal condition of the mill.

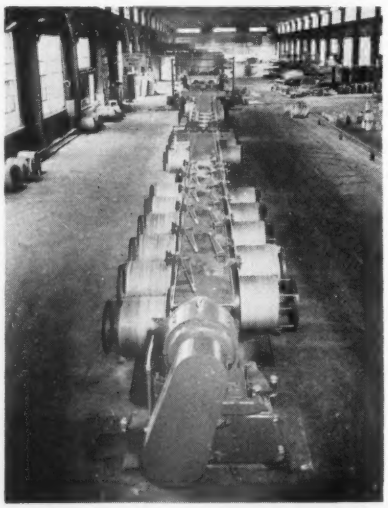

Figure 4 — Wire Galvanizing Equipment with Vaughn Take-Up In Foreground * * *

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Following the tour, the visitors assembled at Glenn Field, Atlantic's athletic and recreation park, for an old-fashioned Southern barbacue. To the songs and music provided by an orchestra, everyone enjoyed the barbacue to repletion. A book, "The Story of Dixiesteel", written to mark the Company's Fiftieth Anniversary, was presented to each guest as he left to return to the hotel.

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In the evening, Clem and Mrs. Clem held open house for the conventioneers. Most of those who were not leaving Atlanta that evening took advantage of the invitation and enjoyed the McGowans' gracious hospitality at their home on Peachtree Street.

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It is redundant to say that the Southern Regional Meeting was a great success. While its success was due to the wholehearted cooperation of all at Atlantic Steel, from Mr. Lynch down, Clem McGowan was clearly the spark-plug, whose moving spirit started the wheels and kept them turning. The thanks of the Association, through him, may be heartily extended to all who so ably contributed to making this meeting a memorable and delightful occasion.

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WIRE MILL PRACTICES AT REPUBLIC STEEL CORPORATION'S GADSDEN PLANT

by A. D. Gordon
Asst. Chief Metallurgist
Gulfsteel Division, Republic Steel Corporation,
Gadsden, Alabama

A paper delivered before the Southern Regional Meeting of the Wire Association in Atlanta, Ga., May 17, 1951.

In 1900 the first steel wire was produced in Alabama. The wire was manufactured at Ensley by the Alabama Steel and Wire Company from steel furnished by the Tennessee Coal, Iron and Railroad Company.

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This arrangement proved relatively satisfactory even though the Tennessee Company was, at the time, producing rail steel rather than the quality required for drawing into wire. In 1902 the Alabama Steel and Wire Company began using steel produced by themselves at Gadsden, Alabama, in the company's newly constructed open hearth furnaces.

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In December, 1905, the Alabama Steel and Wire Company was reorganized and became the Southern Steel Company. In 1907 another reorganization took place and the name was changed to the Southern Iron and Steel Company. It was during this period the Ensley operations were discontinued and a new rod and wire plant was erected at Gadsden adjacent to the open hearths and blooming mill. These new operations became part of what was then described as a most compact and homogeneous plant and one of the few of its kind in the United States.

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The mill as built and equipped was, at that time, considered completely modern. Rod cleaning facilities consisted of seven wooden acid tubs arranged in a semi-circle, and these tubs were serviced by a revolving steam driven crane. A sull coating rack and lime tubs of ample capacity were provided for properly coating the rods after cleaning. Seventeen tunnel type bakers were installed to bake the cleaned and coated rods.

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These cleaning, coating and baking facilities properly prepared the rods for drawing into wire on the six wire drawing benches. Finishing departments were established for converting the wire produced into field fence, barbed wire, nails, bale ties and plain wire, annealed or galvanized.

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The Southern Iron and Steel Company in 1913 became known as Gulf States Steel Company. The years that followed saw improvements made to the mill and its basic equipment to keep it as efficient as possible. The entire Gulfsteel plant was acquired by **Republic Steel Corporation** in 1937. It was realized at the time that changes were needed to make Republic's Gadsden wire mill the operation it should be. Although steps toward modernization were not taken immediately, preliminary plans were outlined, and in 1946 the program was begun.

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The first step was the building of a straight line cleaning house beside the old one. Steel pickling tanks, equipped with rocker agitators lined with rubber and acid proof brick set in acid proof cement, were installed. Rinse tanks, lime tanks and a sull tank were constructed of steel. Following the lime tanks in the straight line are three automatically controlled gas fired bakers.

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Thirty-two continuous wire drawing machines replaced the old drawing benches. Welding machines for joining the ends of the rod coils prior to drawing were added to minimize down time between coils and make the operation as continuous as practicable.

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Electrical controls for the wire drawing machines were centralized in a single tunnel below the operating floor level. This made available more floor space in the existing building as well as affording ready access to all electrical controls.

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To supply the 250 volt direct current necessary for the wire drawing machines, two motor-generator sets were installed in a new building adjacent to the existing drawing room.

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A hot dip wire galvanizing unit was added to supplement two units already in operation. Other finishing departments were brought up-to-date either by replacement or modernization of existing machines and facilities.

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The remainder of this paper is directed toward a discussion of general practices in the present wire mill.

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Hot rolled wire rods are conveyed into the cleaning house from storage or directly from the rod mill by means of conveyor trucks. Each of these trucks has a capacity of 14 coils of rods, which weigh approximately 290 pounds each or roughly 2 tons for the truck load. The 14 coils are handled as a unit through the entire cleaning, coating and baking operations on a bronze hair pin hook by two electric overhead trav-

eling cranes located in the building and operating on the same runway.

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It has been possible to establish a relatively standard cleaning or pickling practice because of the limited number of grades of steel used. Only small compensations in either time of cleaning, acidity or temperature of solutions are necessary when changing to larger diameter rods, killed steels or grades higher in carbon content than the average.

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There are three cleaning tanks in the cleaning house, each having a capacity of 8600 gallons. Sulphuric acid concentrations in these tanks are maintained at 6 to 8 per cent and solution temperatures are held between 160° and 180° F. Steam is used to obtain and hold this solution temperature. A foaming type inhibitor prevents excessive pickling and minimizes acid fumes. Each of the pickling tanks will accomodate 70 coils of rods. Average pickling time is thirty minutes.

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Through this operation and the water rinse which follows, all grades and sizes of rods are cleaned in somewhat the same manner. It is at this point that the processing and the end use of the finished wire begin to determine the subsequent treatment or treatments the rods are to receive in the coating operations.

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Rods to be coated are classified in two very broad categories: (1) rods which are to be sull-coated prior to final coating and (2) rods which go immediately from the rinse to the final coating operation. A further classification of these categories is made and the proper coating is applied which, in combination with the most suitable drawing lubricant, will produce the surface finish and cleanliness desired of the finished wire.

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The sull-rack or tank follows the rinse in the line. It is equipped with two rows of water sprays, one above the other, running its entire length on both sides. Two hundred ten coils of rods may be in process of being sull-coated at one time.

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There are two lime tanks in the line. The first tank, used for light liming, carries in solution or suspension three to five per cent lime. The second or heavy lime tank has a lime concentration of from twelve to fifteen per cent. Variations in amount of lime deposited on the rods is accomplished by using a combination of the two tanks or dipping the rods two or three times in one or the other of the tanks. Steam is used for heating and agitating the solution in each tank until the desired temperature is reached. Compressed air, introduced through the bottom of the tanks, is used to continue the agitation.

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The three bakers are the gas fired recirculating hot air type with automatic temperature controls. Each baker will hold 14 coils of rods. Average baking time is ten minutes at a temperature of 350° to 400°F. The coils of rods are removed from the bakers by the cleaning house crane and are set on a conveyor which moves them into the wire mill.

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The rods are transferred from the conveyor by an electric lift tractor fitted with a demountable ram to a ram rack located behind the wire drawing machines. After being delivered to the ram rack, the coils are butt-welded for continuous drawing and are flipped directly from the demountable ram to the wire drawing machine. Two rams are used to service each machine which permits the welding of the back end of the last coil on one ram or flip to the front end of the first coil on the second.

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As is commonly known, it is possible in most wire mills to produce numerous surface finishes on bright basic wire. The major portion of the wire drawn at Republic falls into one of four general classes or types of wire finishes. The four classes are cold heading, clean bright, regular and process. These finishes indicate, to some extent, the suitability of the particular wire for definite methods or means of fabricating, forming or coating. The "cold heading" is for cold upsetting or extrusion, the "clean bright" for spot and butt welding and painting or plating; the "regular" for wire to be galvanized or cut into nails, and the "process" finish is for wire which is process annealed at some intermediate gauge between the rod and the final wire diameter.

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Typical of wire for cold heading is .365 inch diameter used to make ⅜ inch cut thread machine bolts. To produce this wire the rods, after having been properly cleaned, are given two dips in heavy lime, baked and drawn one draft to size. Particular attention is given to the coating operations to insure a uniform as well as a heavy deposit of lime. Various diameters of cold heading quality wires that require two or more drafts to reduce the hot rolled rod to the desired diameter are drawn from the correct rod size after having been cleaned, given two dips in heavy lime and baked.

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All gauges of "clean bright" wire must, at their final sizes, have surfaces relatively free of all rod coating and drawing compound. This, of course, includes one draft wire and wire requiring more than one draft from the rod to final diameter. "Clean bright" wire is drawn from rods which have been given a uniform, light, lime coating prior to the usual baking. The established practice of applying the same lime coating to all rods drawn into "clean bright" wire makes it necessary to change drawing lubricants to compensate for additional drafts and assure the production of the desired finish.

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"Regular" finish wire is drawn from rods that have been sull coated after cleaning. The amount of sull allowed to form on the surface of the rods is governed principally by the number of drafts that will be needed to reduce the rod to the desired wire gauge. Prior to baking, the rods are given a coating of heavy lime which, together with the sull coating, forms a base for the drawing lubricant. Suitable drawing lubricants are used in drawing sull coated rods to produce wire having a distinctive hard lacquer-like finish.

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The term "process" is not used to describe the appearance or condi-

tion of the surface of a particular wire at its final gauge. It indicates the preparation given rods for annealed-in-process wire. It also determines the coating given the process annealed wire after cleaning. Cleaned rods for this wire are given a light sull coating followed by one dip in heavy lime before baking. Wire which has been process annealed and is to be drawn to a finer gauge is cleaned, heavily lime coated and baked. Baking time for this wire is usually extended three to five minutes to minimize wire breakage during the drawing operation. To obtain the desired surface finish on annealed-in-process wire at its final size, changes are made in the quantity of lime coating applied or in the type of drawing lubricant used.

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All of the wire is dry drawn. The drawing lubricants used are grease and compounds containing one or more kinds of soap powder. Lime is mixed with the compounds to control their richness. The amount of lime added to any of the compounds depends on the finish the wire is to have and the number of drafts that will be used to reduce the hot rolled rod to the desired wire gauge.

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The lubricant used for drawing cold heading quality wire is a mix made with lime and a metallic stearate, palmatate, or laurate soap. One draft "clean bright" wire is drawn through grease. For drawing multiple draft wire, which is to have a clean bright surface, a compound is used. In some instances where conditions in a customer's plant make a soap finish undesirable, grease is used for drawing "clean bright" wire. "Regular" and "process" wire are drawn using one of the soap compounds as a lubricant.

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Sintered carbide dies are used throughout. The various sizes of dies needed to draw wire ranging in diameter from ½ inch down to and including .0286 inch (22 gauge) are purchased in the rough cored condition. The suppliers furnish the dies with preformed approach and back relief angles. To grind, size and polish all dies, a completely equipped die shop is operated in connection with the drawing room.

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Primary grinding, sizing and polishing of new dies or used dies that are being reworked, is done by semi-automatic machines. Final sizing and polishing is done by hand. Abrasives of increasing fineness are used as the dies progress through the various operations involved in their preparation. A 220 grit abrasive is used for the initial operation followed by 320 grit for sizing, 400 grit for polishing and number 5 and number 3 diamond powders for the final sizing and polishing.

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The major portion of the wire produced is drawn through dies having an approach angle of 20° and a bearing length equivalent to 50 per cent of the diameter of the wire to be drawn. Some deviation from these dimensions is necessary to compensate for different nib sizes. Dies for one draft wire and ripping dies for multiple draft wire are finished with an approach angle of 28°. The dies used for drawing wire larger than ¼ inch in diameter have a bearing length of ¼ inch.

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Due to the limited number of grades of steel drawn, it is not necessary to vary the operating speed of any group of machines producing relatively the same gauges of wire. All of the machines used for drawing wire coarser than 15½ gauge are equipped with 26 inch diameter finishing blocks. The six draft machines used for gauges finer than 15½ are equipped with finishing blocks 16 inches in diameter. Wire between ½ inch and ¼ inch in diameter is drawn at speeds from 30 to 90 R.P.M. This gives drawing rates ranging between 200 and 600 feet per minute. As the diameter of the wire to be drawn is decreased, the speed of drawing is increased to the maximum. One draft wire finer than 3 gauge and any gauge requiring two drafts from a 5 gauge rod is drawn at a rate of 600 feet per minute. The still finer gauges up through 15½ gauge are finished at 1400 feet per minute. The gauges produced on the machines equipped with the 16 inch diameter blocks are drawn between 1300 and 1400 feet per minute.

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When the mill is operating on a normal schedule, approximately 20 per cent of the wire drawn is shipped in coils directly to the customer without any further mill treatment This leaves 80 per cent of the drawing room production that is given additional processing.

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The largest consumer of bright wire among the units that make up the wire mill is the nail department. There are 168 machines which produce nails in sizes from a maximum of ⅜ inch diameter 12 inches long to a minimum of 20 gauge ½ inch long. The majority of the nails are shipped bright, however 12 to 20 per cent are either galvanized, "cement" coated or blued. All nails are packed in wooden kegs.

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The three hot dip galvanizing units are used to produce both galvanized and lead annealed wire. Each unit consists of 36 pay-off reels, two lead annealing pans, tanks for cooling, cleaning, rinsing and fluxing, a spelter pan, and a 36 block take-up frame for re-coiling the finished product.

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The weight of zinc coating per square foot of wire surface is controlled by varying the temperature of the spelter, length of time that the wire remains immersed in the spelter or a combination of the two. Present day specifications governing the minimum and maximum weights of zinc coating the various gauges of wire are to carry, have emphasized the necessity of carefully controlling each of the factors which influence this property.

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To fabricate a large portion of the galvanized wire there are 12 machines for making field fence and 53 machines for manufacturing barbed wire. The field fence machines produce the hinged joint type fencing in gauges from 11 through 18 and heights between 26 and 72 inches. Barbed wire is produced in two types—two point and four point —with barbes spaced 3 to 5 inches apart. Strand wires are usually 12½ gauge and barbes are 14 gauge, although some barbed wire is made with 14 gauge strand wires and 15½ gauge barbs.

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Single loop bale ties are made on 12 machines using either lead an-

(*Please turn to page* 622)

The Use of Basic Open-Hearth Semi-Killed Steels in the Manufacture of Wire Mill Products

By Kenneth P. Campbell, Works Metallurgist
Sheffield Steel Corporation,
Houston, Texas

This paper was delivered as a part of the Technical Sessions of the Southern Regional Meeting of the Wire Association held in Atlanta, Ga., May 17, 1951.

The Sheffield Steel Corporation. a subsidiary of Armco Steel Corporation, Middletown, Ohio, is a completely integrated steel plant located in Houston, Texas. The blast furnace at this Sheffield plant, with an output of nearly 1000 tons a day, provides the hot metal for the 8 open hearth furnaces, which have a capacity of 80,000 ingot tons per month. Raw materials native to the southwest are utilized in the blast furnace. East Texas supplies 80% of the iron ore used, a brown limonite ore which is concentrated to contain about 50% iron. The remaining 20% of the ore charge is a hematite ore from Mexico, containing 62% iron. North and Central Texas supply an abundance of limestone satisfactory for use in the blast furnace. Our coal is obtained from mines near McAlester, Oklahoma, and from Alabama. This coal, after passing through the coking ovens, produces a satisfactory coke for the blast furnace.

* * *

The Wire Mill at the Texas Sheffield plant is one of the many units operating in this giant industry. In the past, the Wire industry has generally shown a preference for killed and rimming types of steel in the manufacture of wire mill products. However, of late, our practice at Sheffield Steel Corporation has favored almost exclusively, the use of basic open-hearth semi-killed steels for wire mill operation in its Houston plant.

* * *

This practice is at variance with that of the sister plant in Kansas City, Missouri, where rimmed and killed steels are used, chiefly. During World War II, we, at the Houston plant, depended on rimmed steels for wire mill products, but at the end of that period, the subject of using semi-killed steel was broached. To say that the innovation was welcomed would be misrepresenting things at bit. Due to the past Kansas City experience, the Wire Mill Superintendent was reluctant to make the transition from rimmed to semi-killed steels. The sole purpose at first, for introducing semi-killed steels into wire mill operations, was economic: that is, we were seeking a greater recovery in the rolling mills. But, also, we were seeking means to achieve more over-all uniformity of mechanical properties from heat to heat, an aim that presented many problems when working with rimmed steel. Early in our use of semi-killed steel in the wire mill, it demonstrated its drawability, uniformity of mechanical properties, and economy, resulting from an over-all increased yield.

* * *

The capacity of the Wire Mill is 7,500 tons of diversified common wire mill products made of semi-killed steels. The range of specifications of the semi-killed steels made for use in wire mill operations, is shown in the following table (See Table 1). Undoubtedly, one fact is obvious to those of you who have a greater variety of end uses than are listed in the table, and that is, we are working with only five different steel specifications. This narrow range has been forced on us, to a great extent, by our shortage of coil storage space.

* * *

TABLE #1

GRADE	END USE	Carbon	Manganese	Phos.	Sulfur
B Stock	Market Wire, Staples, Mesh, Small Nails, Stapling Wire, Annealed Stock	.06/.08	.30/.40	Max. .04	Max. .04
C Stock	Hard Galvanized Wire, Nails, Fence Line Wire	.15/.20	.30/.50	Max. .04	Max. .04
E Stock	Galvanized Wire (Hard), Cotton Buckle Wire	.19/.22	.30/.50	Max. .04	S Max. .04 / Si .08/.10
G Stock	Galvanize Stock, Fence Stay Wire, Barbed Wire	.06/.08	.30/.50	.06/.08	Max. .04
K Stock	Galvanized Signode Tie Wire, Rock Fastener Wire (Soft, Medium, Hard)	Max. .05	.30/.40	Max. .030	Max. .04

These grades, all semi-killed, with their accompanying specifications, are made in the open hearth with the aim of providing steels that, after processing, will meet the mechanical properties specified by the consumer. These properties are illustrated better, perhaps, by a review of the end products that are obtained from the various grades. The mechanical properties of the steels are reflected by their tensile strengths, in most cases, and by Rockaway test results in rock fastener and stapling wire. (See Table 2)

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Semi-killed heats of steel for wire mill operations are scheduled for production in the open hearth, based on consumer orders. After processing, a grade is sought that will meet consumer specifications, and the results that may be obtained from that grade are known, quite definitely, from past performance records.

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In our Open Hearth Practice, we pour the wire mill heats into 23″ x 25″ molds to a height of 85″. An extensive survey and statistical record has indicated that this size mold, poured to the height of 85″, produces the maximum yield from ingot to bloom. The ingots are broken down to 8⅞″ square blooms in the Blooming Mill, each ingot yielding two blooms about 22 ft. long. Average recovery from the ingot to the bloom is 88.6%. (All yield figures used to illustrate this article are based on the last six months' production records of 1950.)

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The 8⅞″ square blooms are processed directly through two 26″ stands, thence through the 19″ mill, finally being reduced to the 2″ x 2″ billet. After leaving the soaking pits, no further heating is necessary from the ingot to billet. The 2″ x 2″ billets are cut into 27′—30′ lengths and placed in racks to await rolling in the Rod Mill. In the reduction of the 8⅞″ square bloom to the 2″ x 2″ billet, we average 99.2% yield.

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The billets are processed through the Rod Mill in the conventional manner, most wire mill stock being reduced to 5 rod (nominal diam. .218) and coiled. The greatest handling loss encountered in this phase of processing is caused by scale loss. This is to be expected, due to the increased area of metal exposed to the oxidizing action in the heating furnace. Even this scale loss, combined with the loss due to cobbles created by pipe and mechanical difficulties, does not represent a very appreciable reduction in our recovery. Our experience shows that we obtain a recovery of 94.8% in the billet to 5 rod coil. In this rolling operation, coupled with increased production, there has been a decrease in losses due to steel defects. In the opinion of some Rod Mill personnel actively associated with the rolling operations, the semi-killed steels have acted better generally, in producing through the mill, than did

TABLE #2

TYPE OF PRODUCT	GAGE	STOCK ROD	NO. OF HOLES	TENSILE STRENGTH IN PSI			
				Spec.	Actual High	Actual Low	Actual Average
Line Wire Field Fence	10 galv.	5C	2	70/90,000	76,000	70,000	73,000
	11 galv.	5C	3	70/90,000	79,000	71,000	75,000
	12½ galv.	5C	4-5	Max. 80,000	75,000	66,000	70,000
	14½ galv.	5G	5-6	70/80,000	82,220	68,080	73,350
Stay Wire Field Fence	12½ galv.	5G	4-5	Max. 70,000	74,560	67,350	69,920
	14½ galv.	5G	5-6	Max. 70,000	72,740	66,560	69,000
Barbed Wire	12½ galv.	5C	4-5	60/75,000	75,000	66,006	70,000
Market Wire Bright Basic	9½	5B	3	80/100,000	101,000	90,300	96,850
	11½	5B	4	94/114,000	115,700	93,400	107,400
Stapling Wire	16	145AC	6	100/130,000	129,300	112,600	120,950
	18	125AC	6	100/130,000	116,000	100,500	108,250
Rock Fastener Wire	14	5K	5	Max. 70,000	66,800	58,700	62,750
	15	5B	6	60/70,000	70,220	60,220	65,220
Hanger Wire	12-3/4	5C	4-5	85/105,000	113,850	81,840	97,790
Signode Tie Wire	15 galv.	5K	6	Max. 66,000	67,070	60,640	63,500
Buckle Wire	3	19/64 E	1	95/113,000	116,850	94,400	108,500

rimmed steels.

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The coiled rods are sent directly from the Rod Mill to the coil storage bins, where they are stacked until needed. From coil storage, the rods pass through the cleaning house, a straight line operation with an eight pin cycle. The rods are pickled in a sulfuric acid bath. Normal strength of the acid bath is 8% by volume, when first made up, and is used until it decreases in strength to 1½—1%, at which point it is dumped. Rodine 107 is used for inhibitor. The coils are removed from the pickling vats, washed with water, then dipped into a bath which may be either borax or lime, following which most are air dried. About 10% of our pickled rods are baked. 80% of our coil production is borax coated, using 10 to 12 oz. of borax per gallon of water in the coating bath. Our use of borax in place of lime, in Houston, was necessitated by climatic conditions existing along the Gulf coast. Rods coated with lime, which stand for any appreciable time, absorb moisture from the atmosphere and create a drawing problem, whereas, we found that the borax coated rods resisted rust formation quite well when placed in storage. The use of borax as a coating has been satisfactory for drawing rods up to ¼" in diameter. Above the ¼" dimension, the borax coat presented drawing difficulties and we found that a lime coat would be a better drawing agent, and too, that lime was necessary when a bright finish wire was desired. To meet these last two conditions, we lime coat about 20% of our cleaned rods. The lime bath in operation in the Sheffield wire mill utilizes powdered hydrated lime, instead of lime putty which is commonly used in many wire mills. Normal yield through the pickle house averages about 98.75%.

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By this time, the cleaned and coated rods have reached the drawing stage. The Sheffield Wire Drawing Department is equipped with four double-deck, single block machines and eighteen continuous machines of the four, five, and six hole types. The use of semi-killed steels for wire drawing presented no special lubrication problems and no differences in the amount of draft that could be taken were apparent. The surface of the rods presented no problem, being sufficiently smooth to facilitate normal production operations.

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Through the drawing phase of processing, our experience has shown a 99.4% recovery. In conjunction with this recovery figure, we have had very satisfactory results with die life in the drawing of semi-killed steels. By advancing our dies into progressively larger gauges, we realize one usage of each thousandth on an inch of carbide, and for each new die started we average 200 tons of drawn wire.

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The transition from the use of rimmed steel, to the exclusive use of semi-killed steels in wire mill operations, created a few problems which were mainly those involving mechanical properties and bend characteristics. Most of these were met by changes in mill practice and by varying the specifications in the open hearth, so that the mechanical property requirements sought in the finished wire products were obtained. It was found that once these conditions were met, and a standard practice established, there was a definite uniformity in the quality and performance of the semi-killed steels.

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It has been shown that when the specifications established for the open hearth were met, and the standard practices set up for the wire mill operations were carried out, the resulting processed steel has mechanical properties which fall into fairly close ranges, when rated on the basis of tensile values. With a limited area for coil storage, this meant that heats of steel did not have to be segregated as individual heats, but could be placed in bins indentified solely by the designation of the stock type. Thus, with limited storage facilities and the fact that we work with only 5 grades of steel identified by different chemical analyses, we were able to obtain the maximum utilization of storage space and still maintain high production. Variations in the wire mill annealing practice served to bring the final tensile values within specified values, and by scaling the carbon ranges of the semi-killed steels downward, mechanical properties that compared favorably with those of rimmed steels used previously, were obtained.

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Once the specification ranges were established, we expanded our use of semi-killed steels to meet the demands of all the wire mill operations.

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Sheffield's Nail Department operates forty-eight machines, with a production of 90 to 100 tons of nail products each twenty-four hour day. The products of the Nail Department range from small staples to brads, and on through the various penny sizes of cold-headed nails to the large 80 penny. The nail machines are all of the glader type. Through this phase of operation we average a loss of 2%, due to whiskers (pointing). This is a theoretical figure that represents an over-all loss average on all sizes.

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In addition to the wire drawing and nail departments, we also have sections for pot annealing and two mat (wire mesh) machines. Further processing of the drawn wire is done in the galvanizing department and its allied units, the field fence and barbed wire sections.

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Using a 36 block take-up frame, we furnish galvanized wire for all products requiring zinc coated wire. Before entering the zinc pans, the wire is annealed by passing it through lead pans and this enables us to control the properties of the galvanized wire quite accurately. From the galvanizing frame, the wire is either shipped to the consumer in coils of weight specified in the orders, or carried to the field fence and barbed wire sections. The four field fence machines and twelve barbed wire machines fabricate the galvanized wire into finished products. The uniformity of the mechanical properties of semi-killed steels has proved to be of value in meeting the narrow range of specifications allowed for wire designed for wire-bound boxes. Also, its workability in the fabrication of

(*Please turn to page* 618)

Safety At Atlantic Steel

by J. H. Girdler
Vice-President in Charge of Operations,
Atlantic Steel Company,
Atlanta, Georgia

This paper was presented before the Southern Regional Meeting of the Wire Association on May 18th, 1951. In connection with his presentation, Mr. Girdler illustrated some points with a skit that was acted out by members of Atlantic Steel's Accident Prevention Committee, adding greatly to the understanding of and interest in the presentation.

Gentlemen, it is a pleasure to be asked to discuss the Atlantic Steel Company's Accident Prevention Program before the Wire Association. I say "Accident Prevention Program" instead of "Safety Program" because accident prevention is back of everything we do in safety at Atlantic Steel Company.

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A good question to answer at the start is, "What is the modern safety record at Atlantic Steel?" One hundred and one accident free days for the entire plant during the winter months of 1948-1949 and totalling 1,090,652 man hours of work is the plant record.

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Our 2007 employees worked a total of 4,095,333 man hours during 1950. We are a long way from being on the champions list, because the steel industry's record is now 6,743,-644 accident free man hours, set by the Elwood City plant of National Tube in 385 days.

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We do have a plan for Accident Prevention that we are justly proud of, and the record of the last seven years will show the progress made.

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Prior to 1946, we had a Safety Department, annual safety prizes, and numerous safety contests. Also, we had a First Aid Department and a Company doctor, and it has been truthfully said that the doctor was doing most of the work.

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In June, 1946, Mr. **R. S. Lynch,** our President, created an Accident Prevention and Plant Housekeeping Committee, and I believe that our real progress in accident prevention began then.

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From the start we recognized four main subdivisions of Accident Prevention work and formed committees to handle them. Those committees were:

(1) Good Housekeeping Committee
(2) Unsafe Practices Committee
(3) Safety Suggestion Committee
(4) Workers Attitude Committee

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Since the beginning of the A.P.C., as we call our Accident Prevention Committee, 160 people have served as members, and there have been 20 general chairmen. Each committee consisted of: a general chairman, who is a department superintendent; a vice-chairman, our Safety Director, who is the permanent secretary of all the committees; and from 10 to 16 members from the foremen's level or above. The chairmen serve three months, and the members serve six months with one-half of the members changing each three months. Committee meetings are held weekly for one hour, or longer if necessary. Workmen also attend the weekly meetings at the invitation of their foreman, and all attend on Company time.

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In addition to the A.P.C. meetings, all operating superintendents have a regular weekly safety meeting together, at which time accident prevention planning is the keynote.

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Once each month an executive safety meeting is held which all supervision are required to attend. That is the time the A.P.C. has chosen to sell the next month's safety program by talks, skits and films.

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This year every effort is being made to get every foreman to hold regular weekly safety meetings with his men. The planning for those meetings originates in the General Superintendent's office, and is carried to the foremen by the superintendents after their regular weekly safety meetings.

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The entire program of the A.P.C. during 1951 is built around regular weekly safety meetings between all foremen and their men. The job of the A.P.C. committeemen is to help the foreman plan his weekly safety meetings, not to conduct safety meetings.

(Skit on "Eye Safety" given at this point.)

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The backbone of any Accident Prevention Program is good housekeeping. We have traveled far along that road since the first Accident Prevention Committee. We started out by making monthly housekeeping inspections by the President's Staff, with a prize to be awarded at the monthly executive safety meeting. We now have daily inspections by members of the A.P.C., and the subject is always stressed by the foreman at his weekly safety meetings. Our plant is clean, but it takes the finest kind of cooperation between supervision and employees to keep it that way. There is no substitute for pride in good housekeeping.

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The next important fundamental of our Accident Prevention Program is the attitude of the employee himself toward safety. Our management believes that there are three great hurdles to get over in getting the right attitude toward safety in a plant:

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First—The foreman, or working group leader, must be sold on safety, and man-

agement's believe that the safety of his men must come first in the foreman's thinking.

Second—The worker must be sold on safety and management's belief in safe working conditions and the best possible housekeeping.

Third—The workers must be trained in working safely and in keeping their minds on their jobs, and in the safe operation of all hazardous equipment.

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It took over two years for the Atlantic Steel Company's Accident Prevention Program to get over the first two hurdles. We had to sell the foreman on his key responsibility in safety, and win the support of the workers through participation in the Accident Prevention meetings.

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We also try to get the new employee started right in safety. Our Safety Department gives the new employee induction talks in safety. The new employee also receives safety instruction from his foreman before being put on the job. It is impossible to minimize the importance of the leadership of our foremen in selling "Accident Prevention mindedness" to our employees.

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The third hurdle—that of thorough safety training—is still ahead of us. We have started a far-reaching training program. The first tool used has been Job Instruction Training, and we emphasize the safety points in making job breakdowns. Related Job Instruction is the next step in the program, and again we will stress safety training.

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I have been asked many times, "What does management believe are the responsibilities of the foremen in Accident Prevention work?"

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The first great responsibility of the foreman is to instruct each employee thoroughly in the safety precautions of the job. We ask our foremen to analyze jobs with the "safe way" in mind.

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The second responsibility of the foreman is to follow up safety training constantly. The only way that safety training can be made effective is for the foreman to have regular, periodic, personal safety contacts with all his employees.

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The third responsibility of the foreman is to keep all safety devices in proper use. It is our opinion that one of the greatest aids in the prevention of accidents is the proper use of safety equipment. We have reduced eye injuries by a conscientious goggle program, foot injuries by a conscientious safety shoe program, and finger and hand injuries by a conscientious glove program.

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The foreman is the key man in all those programs. He can accomplish more by stressing the real reason for using safety equipment than by using discipline.

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The fourth and final great responsibility of the foreman is to set a good safety example himself. He must practice what he preaches and follow up all cases of indifference to safety.

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Our Safety Office is of great help to the foreman in Accident Prevention work. The Safety Office is staffed with a trained attendant to fit safety shoes and goggles. Safety shoes and gloves are sold to employees at cost. Goggles are furnished free, with the exception of the cost of prescription glass. We distribute all safety equipment from the Safety Office.

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I said in the beginning that our record would show the progress made. I would like to present a comparison of the war year 1943, which was our worst year, with 1947 and 1950.

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Accident Frequency	
1943	16.12
1947	6.08
1950	4.64

Accident Severity	
1943	5.46
1947	2.75
1950	.85

Medical Expense and Compensation Cost
1943—$42,624—$30.25 per employee—1409 average number employees
1947— 19,551— 10.83 per employee—1804 average number employees
1950— 17,241— 8.59 per employee—2007 average number employees

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Those are records of improvement of which we are proud.

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We feel that our goggle program has paid its way. During the six year period 1939-1944, we had 837 eye cases which required medical attention. During the six year period 1945-1950 we had only 417 such eye cases, which is a reduction of slightly more than 50%. During the same comparative periods, the compensation and medical expense on eye cases involving specific loss, or loss of use of the eye, was reduced 70% and the number of cases was reduced 75%.

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During the period July 1, 1949 through December 1950, a record was kept of the gloves and safety shoes sold to our employees at cost. Our Safety Department sold 3004 pairs of safety shoes and 11,325 pairs of work gloves to our employees. We cannot report statistical improvement, but there has been a definite improvement in the number and severity of accidents caused by the failure to wear good safety shoes and work gloves.

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I would like to pay tribute to the fine Accident Prevention work of all our Wire Departments. The Bright Wire Department worked 22 months between June 1949 and April 12, 1951 without a disabling injury. There were only three disabling injuries in all the Wire Departments during that period, and the period between December 1, 1949 and April 1, 1951 was accident free—a total of 497 days and 812,598 man hours worked.

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Clem McGowan gives full credit to his fine supervision and the cooperative spirit shown by all 330 Wire Departments employees.

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Summing up the Atlantic Steel Company's Accident Prevention Program, our management believes that it is entirely possible to have "Safety with Production."

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'THE SOUTH SHALL RISE AGAIN' . . .

A Tribute to a Man Named McGowan!

by Fred H. Parkin

We came, we saw — and they conquered! We? Those who gathered last May in Atlanta for the regional wire convention. They? The Atlantic Steel Company — and more specifically — a man named McGowan!!

One of the most successful and well-managed wire conventions went over with a Bang! A gentleman of many years experience in the steel industry, affectionately called Uncle Clem, Mr. Mac or just plain Clem McGowan, walked off with top honors! The scene was the Henry Grady Hotel in Atlanta. The time was 8:15 p.m. The day—May 17th, 1951. Atlantic Steel's genial President, Bob Lynch, was addressing the group who had gathered for the evening banquet festivities. He kidded about a remark made earlier in the day by Standard Compound's "Chuck" Orr:—"I've known Bob Lynch all my life—since early Apollo, Pa., days — why in H - - l should I pay six bucks to hear that guy make a speech?" As a gag, the Atlantic Steel people had cornered a host of confederate paper money, which was passed around the banquet tables — mostly to the northern folks on hand. "This money," related Mr. Lynch, "is a 'rebate' or 'return' to those who didn't wish to pay six dollars to hear me make a speech — especially to Chuck Orr!!" It got quite a laugh. Further generous compliments were paid to Mrs. Chuck Orr — with a slight subtle crack that without her good work and charm, one Mr. Orr might well be a business flop! Bob Lynch further stated that as far as he knew, the "Governor of Texas" was in Baltimore this particular day, even though one Bill Dull—noisest Texan at the convention — was passed off on all of Atlanta as the "Gov. of Texas" and actually was wined and dined as such.

The band, as dinner commenced, struck up "Way Down South in Dixie" and a roar of voices went up as all our good southern friends—wives and all—broke into song and waved the confederate flags that adorned the banquet tables. Never saw such a fine spirit at any convention. But getting back to this man named McGowan. President Lynch extolled the virtues of Clem McGowan, his wonderful influence over a period of some 45 years in Atlanta, the great host of friends there and everywhere who knew, loved and admired him! "The Southeast", he reported, "has owed its success and credit to a lot of men like Clem who came there early in the game, stayed on and aided in its advances in industrial buildup, culture and all." Things almost started to get on the weepy, tearjerking side when Mr. Lynch called for the band to play "When Irish Eyes are Smiling" as a tribute to Clem and his wonderful wife; everybody stood up and sang it at the top of his and her lungs! The emotional stress — and this wonderful tribute to Clem McGowan — was almost too much! I wondered as I sang — what would Uncle Clem do now! He turned to Mrs. McGowan (at his side at the speaker's table) and planted a very thoughtful kiss on her cheek. "What can I say," he beamed to all his friends, "but thanks!!" Anything else at this point would have been superfluous! For he and Mrs. McGowan registered a spirit of happiness they will long remember — and so will those who were there.

The whole convention ran off very smoothly—thanks to the fine coordination and management of Clem and all the Atlantic Steel Company personnel. The technical sessions were splendid—especially V.P. Joe Girdler's talk on Plant Safety. Joe had four young men from the mill put on an excellent skit to show the advantages of "safety glasses in the mill". On hand from Beaver Fall's area—brother Tom Girdler, Jr. These two are certainly keeping the name of Girdler high up in the steel industry—as has Tom Girdler himself. So are the Parkins—for that matter. Brother Bill and I are the third generation in our family directly associated with Steel. My father is retired from the inhibitor business after nearly 40 years of it. He was preceded by his father, Charles Parkin, originally from the early steel days in Sheffield, England. And there are four Parkin sons (mine, he said modestly) waiting to trade the routine of diapers, grade school and all for the sweet odors of any pickling department in any mill where good inhibitors are required! Obviously I refer to NEP (new economic pickling) INHIBITORS. Fine potent pickling pacifiers, too.

The Plant visit was well planned. One guide for every six visitors allowed as much freedom and wandering as desired. "Many gallons of paint and many brooms were used," twinkled Clem McGowan, "but then our plant is always this clean," he added! The Piéce De Résistance followed this visit—The Atlantic Steel Company put on a swell "bar-b-que" and coke party at their picnic grounds for all visitors, attractive wives included. Compliments of Bob Lynch. Credit should surely go out where credit is due—to name only a few: Dick Wright, gen'l sup't of the mill, Joe Girdler, the Lennox father and son combine, Clem's boys, Walt Patterson and Les Spradling and many, many others. They really turned themselves inside out to show the "*damnyankees*" (I was even corrected as to the fact this is all one word) what a fine mill they had in Atlanta. Was good to see Randolph (what a name for such a big guy!) Van Miller, the industry's junior atomic bomb project on foot! I overheard Mrs. Red Crewe re-

mark one night, after meeting Miller: "He's terrific—never saw so much enthusiasm and energy packed away in one man!" I concur. It's now rumored that every barrel of soap sold by Messrs. Miller, Smigel and Crum might well contain a bonus therein in the form of a fine corset. You've heard of the Miller corset company, of course! What's next for the Orr-Hauger combination! Standard'll have to come with something for the gals!

When the bar-b-que finally broke up (and the Lennoxs, Weisel, Bob Peterson, Raffensperger and Parkin group had traded all their latest jokes), we moved on to Peachtree Street (made famous by one Clark Gable in G.W.T.W.) to the McGowan's home for an open-house party. Truly a fitting climax for the best two day convention ever. "The best Thursday and Friday ever spent" was the gist of the remarks heard that evening back in the hotel. Many thanks to Clem McGowan for working there 45 years as a buildup for this spring regional meeting in the deep southeast! Incidentally, it was good to see Joe Williams in from Y.S.&T. Co. in Youngstown. Sorry "Slim" Hoskinson had to miss this one.

Local hotel lobby chats showed many folks from the north, far west, Canada and the old country. Nice to see Bob Peterson from Worcester. I hear tell he's rated as one of the smartest and most up and comingest wire men in that whole region. On hand from Igoe Brothers in Newark, N. J.—Ben Mondi (happy honeymoon, young man) and his ass't Frank Marazino. Mac McIlvried and Gene Daugherty from the Vaughn Company—sorry Lee Vaughn was conspicuous by his absence—but the spirit was willing, the health not! Naturally Pat Weisel was around—no wire convention can operate without that guy. Have a good trip in Europe, Pat—but be sure and return for the Chicago soiree in October at the LaSalle Hotel. Lots of Big and Little(?) Johnny Moritzs around, plus wives and families. Young John walked off with top honors for the loudest sport shirt in town! Mr. and Mrs. Carl Johnson also present. She "boigned" her head slightly before the banquet when an elevator in the Grady Hotel quietly slithered all the way down the shaft and could not stop 'til it reached the basement. Wasn't really hurt, but it's still a little tough climbing out of elevators in any basement in any evening dress!

Donora's pride and joy (next to well known Stan Musial), J. J. "Joe" Just, was on hand. Everpresent, Major Dick Brown, looking hale and hearty—of local pulp paper fame (W&WP), "Capt." Ruth Spengel keeping the organization together in the Hotel—Lieuts. Ed Donnellan and Ed Sickels looking like platoon leaders waiting for an accident about to happen—and it didn't! The usual die lads always around—to name a few: from Carboloy—Earl Glen and from Firth, Elmer Weber. Mr. and Mrs. Ken Davis, looking well, properous and well-preserved (as the Baesslers) from the West Coast. Must be that clear sunshine out there! Even had some good golf (green fees courtesy of the Atlantic Steel folks). Borrowed Chuck Orr's golf shoes (size unlimited) and Mrs. Orr's clubs and went around nine holes with young boy athlete Walt Smigel (How was I to know he was so good!) After my first two tee shots sliced off into South Georgia, my excuses were (1) the clubs were too short, (2) shoes too large, (3) my aching back ached, (4) my first game on a strange course. What more could I say? Back at the Hotel, ran into the Point's well known metallurgical supervisor, Pete Raffensperger trying to figure out which train would best speed him homeward after the show was over. From far away Quebec, there was Alan Dove, the usual pipe in mouth smoldering some Canadian blend of coffee. Present and accounted for: Mr. and Mrs. Al Knapp from G. F. Wright in Worcester, Glen Hawk and Jim Thompson, AS&W in Cleveland, J. W. Galloway from B. Greening Co. in Hamilton, Ontario (where we had enjoyed a successful gathering the previous month), Bill Bawden and wife, in from Georgetown, Conn., and Earl and Mrs. Bowers—Standard Compound's legmen from Chicago, D. D. "Bucky" Buchanan, from Republic's Massillon area, looking the same as always. There was Fred Crapo, Association president and also head of the Indiana Steel and Wire Co. in Muncie. I always enjoy and respect a good public speaker—and he certainly qualifies along these lines, don't you think? Red Crewe and attractive wife in from a place called Cockeysville, "Have you joined up with the volunteer firemen there yet, Red?" From nearby Birmingham—wire mill sup't M. G. Crosthwait at T.C.I.R.R. Corp., Les Sommer and wife (always seeming to enjoy these shows) from Crawfordsville, Indiana Lehigh U's gift to the trade (along with many others associated with the steel business) Frank Weise, keeping in tow Portsmouth Steel's chief met., Johnny Nordstrom. From Pittsburgh (my old home town) Mr. and Mrs. Ralph (Cap) Oliver telling me of the latest Firth developments.

This about winds up another Parkin Platitude for the moment! Here's best wishes to the McGowans of Atlanta, long may they wave! Many thanks again to all the personnel at the Atlantic Steel Company for their warm southern hospitality—to the Wire and Wire Products folks, who always have a bus, room, banquet hall or what have you handy and ready at the right time and place. The Regional meeting in Atlanta is now in the books and well-recorded—"On to Chicago in October!"

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MR. WHOOSIS WON'T TALK

When interviewed by our Special Correspondent, as recorded in this letter to Mr. Brown, kindly old Mr. Whoosis whose views were published occasionally in this magazine during the trying days of the early '40s, declined to commit himself to any definite expressions of personal opinion on current conditions. However, our Correspondent's difficulties, in endeavoring to elicit information is interesting and his letter is published herewith in its entirety for the benefit of those of our readers who may recall his earlier writings. All will be glad to learn that the old gentleman is still about.

"**Pursuant** to your request I got in touch, a few days ago, with Mr. **J. J. Whoosis** and proposed that he give me his views on current events, and am very sorry to have to report that the old gentleman won't talk. It was a bitter disappointment to me as I know it must be to you. He has never before failed to comment succinctly and pungently on topics of the day. I know how much you admired Mr. Whoosis in the days when we were all close friends and you will doubtless be interested to hear about my contact, fruitless though it proved to be.

★ ★ ★

"**Though** it is six years, almost exactly, since that fateful April afternoon of 1945 when Mr. Whoosis, his mission completed, retired from mortal ken, there was no perceptible change in the seemingly ageless features and form. We met as nonchalantly as though we had parted but a few days before. Old J. J., as he lets me call him, disappeared at a moment of great public excitement as you well remember, and in the general confusion the wildest stories were current. The one generally accepted was that he was caught in the collapse of a tunnel in attempting an escape from the federal penitentiary at Lewisburg. This made it unnecessary to produce the body.

★ ★ ★

"**Of course** you and I know what has never been allowed to get to the public, namely, that J. J. Whoosis is not of mortal clay. His exact hieratic rank in that Limbo to which he owes allegiance I never knew, though I do know that he is carried on the books as 'The Spirit of the Wire Industry,' and that when he is required to put on mortality he assumes the form and name by which we know him.

★ ★ ★

"**How** did he escape? Simple enough, he told me with a smile. When word reached him that his mission was accomplished he simply de-materialized and walked through the wall. I questioned the old gentleman about certain details, such as by what means did the news reach him in his cell before we got it over the radio, whether he was in possession of facts that might clear up some of the obscurities, etc., etc., but I was brushed off with that suavity which the Old Master exercises so delightfully when pressed. He has a way of looking into your eyes with an expression of utter frankness and saying absolutely nothing till your face turns red and you change the subject.

★ ★ ★

"**Naturally** I pressed Mr. W. for reasons why he was unwilling to be quoted on this administration when he always discussed the Previous Incumbent so freely and so pungently. His reasons will interest you.

★ ★ ★

"**J. J.** It's this way, Junior. I was selected for my mission in the years '40 to '45 for two particular reasons, neither of which is valid as regards the present incumbent. In the first place I had enjoyed, if that is the word I want, an acquaintance with the Previous Incumbent dating back to school days. I had seen him giggle his way through the ivied halls of Harvard. We were associated in the Musical Clubs, where I played the mandolin (you're not publishing any of this are you, my boy? For God's sake don't let that get out), while he harassed our auditory nerves with the germ of that quavering second tenor which later became the scourge of the airways. For a number of years, resolutely choking back, for Auld Lang Syne, a mounting nausea, I suffered such casual contacts as were demanded by the situation. That gave me a locus standi, helped in my appraisal of the personality as it matured, and added pungency to my analysis.

★ ★ ★

"**Now** you take the character we've got in there now; with him I have no such advantage. My parents, though in humble circumstances as the world reckons, were decent God-fearing people; they set my feet on the paths of righteousness from which they have not departed; that is not often. My portrait is not to be seen gracing the horse parlors and hot spots of Kansas City. I have no contacts with that curious half-world whose denizens are always just beyond the finger tips of the Grand Jury but who think that ethics is the name of a low-priced Hudson.

★ ★ ★

"**I.** I yield, Mr. Whoosis; I concede the putt. But how about the second reason?

★ ★ ★

"**J. J.** The Previous Incumbent was a highly dangerous man by reason of the subtlety of his writers, the appealing quaver of that light barytone, and the magnetism that seemed to affect practically everybody but me. Many normally sober and thoughtful folks with light party ties were swept off their moorings. When he cried that black was white they screamed "Black is white," and when he chanted that fifty six cents was now a dollar, tears of joy ran down their cheeks as they shouted

'Praise the Lord; fifty six cents is now a dollar.' A lot of those goddam mugwumps are now finding fifty six cent dollars in their pension and endowment checks and one of my innocent pleasures is hearing them moan.

★ ★ ★

"**Now** take a good look at this character we have in there now. His work is so crude, so gross, so lacking in finesse—why he doesn't even bother to wipe off his fingerprints. The baboons with which he has surrounded himself have butchered political morality and have not bothered to mop up the blood and guts. Our standards have sunk to a level we never knew or feared. The watchword at the executive mansion now is, quote, Is it legal? unquote. Did you ever stop to wonder why they raised his salary to a point where temptation would have no hold? Or why they made it tax-exempt? Think it over.

★ ★ ★

"**The** point I am making, Junior, is that he has alienated all the mugwumps, that great floating mass of fundamentally decent but intellectually feeble voters which, devoid of principle, sways back and forth with the stimulus of its emotions. A Certain Person could play on them as on a harp; not this one. They are the meal-ticket of the rabble rouser and of the Democratic party. I venture to say that at this moment his support has dwindled to the three basic units of the party, the congenital Democrats, the venal who cling to a stake in the party, and that stubborn class of professional men whom capitalism has never seemed able to attract. I'm not needed here at the moment, Junior.

★ ★ ★

"**I.** Passing lightly over the point whether or not you are needed, Mr. Whoosis, I wish you would explain to me again why we can't get the learned professions on the side of decency and order.

★ ★ ★

"**J.J.** It's a damned shame, my boy, but it's always been so and I guess it always will. To some extent it's like the split in English politics, where the peerage and the laboring man, for different reasons, want to kick the middle class in the teeth. The professional men resent business success, which they regard as the absurd over-rewarding of brains that are inferior to their own. They overlook the fact that the great public, voting its dollars as ballots, decides who has made the greatest contribution to the common good.

★ ★ ★

"**I.** Sounds perfectly democratic to me.

★ ★ ★

"**J.J.** Yes, but what does the Democratic party have to do with democracy? What did it ever have?

★ ★ ★

"**Of course,** a man in one of the professions is apt to be immensely pre-occupied with his specialty and lacking of time and opportunity to check the practical effect of fiscal and regulative policies in national affairs. The Democratic principles, and mark you now, I am speaking of the days when the party had principles, the principles are attractive, theoretically sound, and the fact that they are unworkable because they run counter to human nature, is something that doctors, clergymen and educators never learn.

★ ★ ★

"**Have** you noticed how dumb most doctors are, outside their line? They are notorious pushovers for confidence men and wildcat schemes. Right now they probably think they own all the uranium in Canada. You just can't focus on a specialty of that sort with the intensity it demands and have any reasonable fraction of your mind free to note the play of economic forces. In all the professions, for example, there is a general feeling that the rise of unionism is the only thing that prevented the positive enslavement of all mankind by the predatory capitalist.

★ ★ ★

"**There's** really no time to go into the subject today, but remind me to brief you on it next time we meet. But listen; here's a hot one. A poll taken recently among the classes that make up the Democratic party and the union movement, elicited the fact that common opinion is that big business nets twenty five percent or more profit on its operations. Asked to specify a figure which they thought it would be fair to guarantee business operations and set as a maximum, they suggested ten percent! My God, how happy I would be if my stocks averaged six.

★ ★ ★

"**I.** Well J.J., as you have told me so often, you can't expect much intelligence from that segment of the population.

★ ★ ★

"**J.J.** Wait, Junior, here's another one—this one happened to **me.** You know the Atlantic Monthly? Not the sort of thing sought out by the poor and lowly, but a magazine for the intelligentsia, wouldn't you say? I was a subscriber for forty years. A year ago my smoldering irritation at the growing volume and boldness of the pale communist sentiments in their editorial articles reached a climax. In an article by a pinko who was predicting the virtual disappearance of all parties but the Democratic, he expressed wonder at the stubbornness of the opposition of the business man to policies under which he was profiting as never before in history. He cited the steel manufacturers who, he said, were clearing twenty four to forty-eight percent profit.

★ ★ ★

"**I sent** the editor a statement of the profits of all the steel companies in the country, pointing out that the average net was slightly over seven percent, and asking him if he would care to comment. Together the editor and the pinko swamped me with a flood of gobble-de-gook made up of clichés from the purveyors of the party line. The implication was that my figure was one cooked up for the public, while the real profit was quietly cut up by the owners behind the scenes. I answered that I was one of the owners, and their information was extremely interesting because it proved that somebody else was getting my share. How could I get evidence to support my protest?

★ ★ ★

"**Their** reply was a non-sequitur which attacked the honesty of accounting practices with special reference to depreciation. I pointed out that the accounting practice was prescribed by federal taxing authorities and quite beyond our control and charged that if a conspiracy existed to cook the books it must be the most gigantic thing in history, involving hundreds of thou-

sands of clerks, auditors, inspectors and officials of the U. S. Treasury. That stopped them.

★ ★ ★

"**Then** I asked for a retraction. No soap. I pressed the matter. I said I would have a retraction or an immediate cancellation of my subscription. Then they bitterly accused me of intemperate language—**me**, J. J. Whoosis, can you imagine it? I offered to submit the whole file for review by an impartial jury of newspaper reporters. That did it. They cancelled the subscription and refunded all the money, including the price of the offending copy, without comment. For once I had talked a pair of pinkos to a standstill.

★ ★ ★

"**Now** what can you hope from a world in which asinine statements like that can go unchallenged and apparently be accepted? That magazine, mind you, is the sort from which our professional men, educators and the like, the sector of our population that considers itself the intellectual cream, take their opinions. I tell you Junior, when I think of it my blood boils and I . . .

★ ★ ★

"**I.** Excuse me for speaking out of turn, Mr. Whoosis, but your face is turning purple.

★ ★ ★

"**J.J.** Thanks my boy. I was steaming up again—I've been warned against it. Now I guess I'll have to ask you to skip along; it's time for my nap.

★ ★ ★

"**I.** But Mr. Whoosis, haven't you got anything at all for our readers? Mr. Brown wanted me to ask you whether you came back to give aid and comfort to General MacArthur.

★ ★ ★

"**J.J.** (Laughing till I thought he would have a stroke) Did you ever try to give aid to a hurricane? How would you go about giving comfort to a tidal wave? When I left you six years ago I said, quote, I shall return, unquote. So I shall when a crisis is at hand. Until then, au revoir. If your readers want something interesting and salty, let them try Ed Sickels' column, The Wire Outlook, in WIRE & WIRE PRODUCTS. That's my idea of real stuff. Ed lays it right on the line. Ed calls a spade a spade; I can't restrain myself so successfully. I get wound up and call a spade a bloody steam-shovel.

★ ★ ★

"**Speaking** of blood, I wont send you away empty handed; here's a story that came to me direct from the House of Commons. Aneurin Bevan told Churchill that Attlee had offered him a peerage and seat in the House of Lords if he would stick by him and he wondered what Churchill would advise. 'Take it by all means,' said the old master. 'Well,' said Bevan, 'what title would you suggest I assume?' 'How about Baron Thrombosis?' cracked Churchill without a moments hesitation. 'By gum, that sounds great,' said Bevan, 'I'll talk it over with me wife."

★ ★ ★

"**Mrs. Bevan** thought it was a fine sonorous mouthful but she wanted to know if he was sure it had not been used already. It sounded vaguely familiar, and she was of the opinion that Churchill would be glad of a chance to humiliate her brilliant husband. She stepped into the library. A few moments later she was screaming 'O the scoundrel —O the rat—O the dirty chiseling Tory; listen to this, Nye, right out of the dictionary — 'thrombosis'—a bloody clot that you can't get rid of.' Now good night sonny; drop in any time. We haven't touched on the labor situation, but there's plenty of time for the Frankenstein boys; that situation is not ripe yet.

★ ★ ★

"**I.** While we are on the subject of blood clots, Mr. Whoosis, may we draw any comforting inference regarding the present incumbent, anything in the way of a cerebral incident to get us out of the hole again?

★ ★ ★

"**J.J.** Not a chance, Junior; Absolutely imposs. Dismiss it from your mind.

★ ★ ★

"**I.** Well of course I must accept that. With your superior sources of information, —

★ ★ ★

"**J.J.** What do you mean—superior? The information I have on that point is available to every man, woman and child in the United States.

★ ★ ★

"**I.** What do you mean?

★ ★ ★

"**J.J.** I refer to Webster's Dictionary. Look under cerebral. And good night.

★ ★ ★

"**So** there you have it, Dick. I'm terribly sorry I muffed this assignment; it doesn't happen often, but for some reason the old man simply wouldn't talk.

Yours truly,

The Special Correspondent."

When You Come to the Convention...

Take part in the technical sessions by asking questions or making comments from the floor. You will learn more about the subject under discussion and help others to get more out of the paper. If your questions and the answers are later printed you will not be identified by name. A lively, discussion makes a good session. We hope to see you at Chicago in October.

Continuous Casting and Rolling Process Developed for Making Aluminum Rod

by Frank P. Leahey, Executive Vice President
and M. J. Fey, Chief Engineer
Nichols Wire and Aluminum Company
Davenport, Iowa

The operating of this equipment at Davenport is engaging the attention not only of large aluminum wire users, but of defense authorities. With rod production concentrated at a few points, the aluminum wire industry could easily have its supplies cut off. The use of this relatively inexpensive rod-making equipment would make possible the wide dispersal of rod forming facilities and render it practically impossible for any enemy to deprive the country of aluminum wire in time of war. Besides which, there is strong indication of peacetime production economies.

For almost a year the **Nichols Wire & Aluminum Company** has been operating and perfecting an Italian-designed machine that continuously casts and rolls high-purity aluminum rod of better than standard mechanical and electrical properties at its plant in Davenport, Iowa.

★ ★ ★

This compact and relatively inexpensive machine converts aluminum pig or ingot into rod at an average rate of 1,000 pounds per hour. It eliminates the casting of billets and reheating, and provides very large rod bundles without welding, increasing efficiency when rod is drawn into wire.

★ ★ ★

The machine consists of two major units which are placed about twenty feet apart. One unit is a unique casting wheel which forms an aluminum bar into an endless equilateral triangle, 7/8-inch across each side. The second unit is a 15-stand rolling mill of unusual design which rounds and reduces the triangular bar at alternate passes. Equipped with three standard 100 kw induction furnaces, the continuous casting and rolling equipment will cost about $125,000 at present.

★ ★ ★

The two most popular sizes of rod rolled at Nichols are 9/32-inch and 3/8-inch, but a number of other sizes are practicable. The rolled rod in coil form, averaging 225 pounds in weight, is later drawn cold into various wire sizes. The end product has mostly been consumer wire goods.

★ ★ ★

The machine has reduced scrap losses to less than one per cent, but even this small amount of scrap is remelted for use. The machine requires a floor space about 15 by 70 feet and a crew of three. It can operate around the clock when desired. Power requirements are extremely low.

★ ★ ★

Ilario Properzi, President of the Continuus Company of Milan, Italy, originally designed the machine to cast zinc and lead. When Frank Nichols, President of Nichols Wire & Aluminum, saw the machine mentioned in a European technical journal, he sent the authors to Italy to investigate the possibility of developing the machine for casting aluminum. They reported favorably, development work was initiated at once, and the first unit was shipped to Nichols last summer. Since then, development work has continued both in Milan and Davenport.

★ ★ ★

Very little difficulty has been encountered in operating the machine on a regular production basis. Indeed the simplicity of the machine and of its operation are among its most important advantages.

★ ★ ★

The three Ajax furnaces used by Nichols melt continuously. Two of these tilting furnaces feed the third unit. Refractory-lined cast iron troughs carry the molten aluminum from two of the furnaces into the holding furnace which pours into the main trough, feeding a hot metal

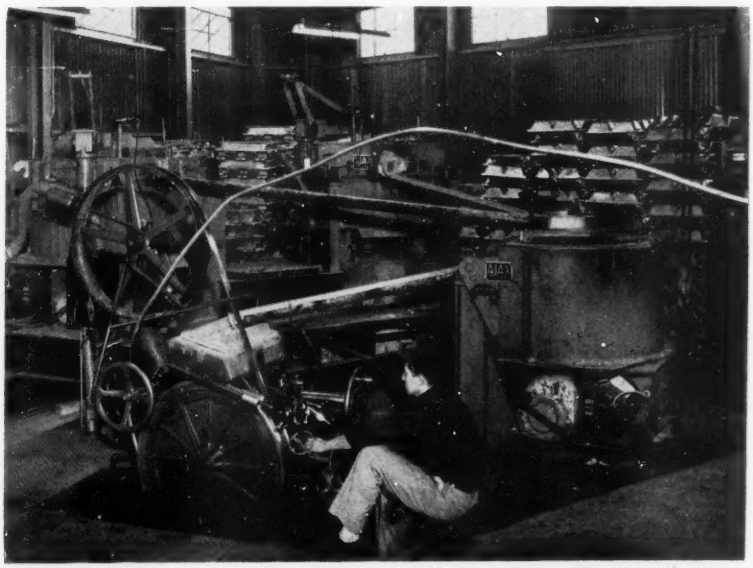


Figure 1 — View showing three furnaces and the casting wheel with triangular aluminum bar moving through air, above wheel, and toward the rolling mill 20 feet away. * * * *

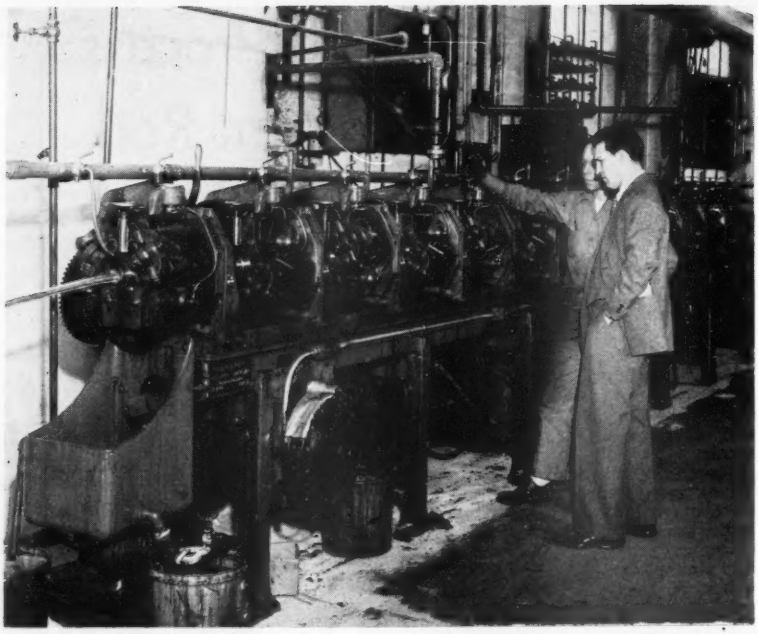


Figure 3-15 — Stand Rolling Mill of unusual design showing triangular section rod entering the mill.

reservoir or ladle mounted on the casting machine. This system permits melting flexibility and, thus, short runs of alloy.

★ ★ ★

The casting unit consists, basically, of two revolving drum wheels and a steel band. Tension over the top wheel keeps the band tight on both. The band serves as one side of a V-shaped mold cavity which is cut into the copper portion of the bottom wheel. A round spout from the ladle feeds molten aluminum at 1220° to 1240° into the copper mold

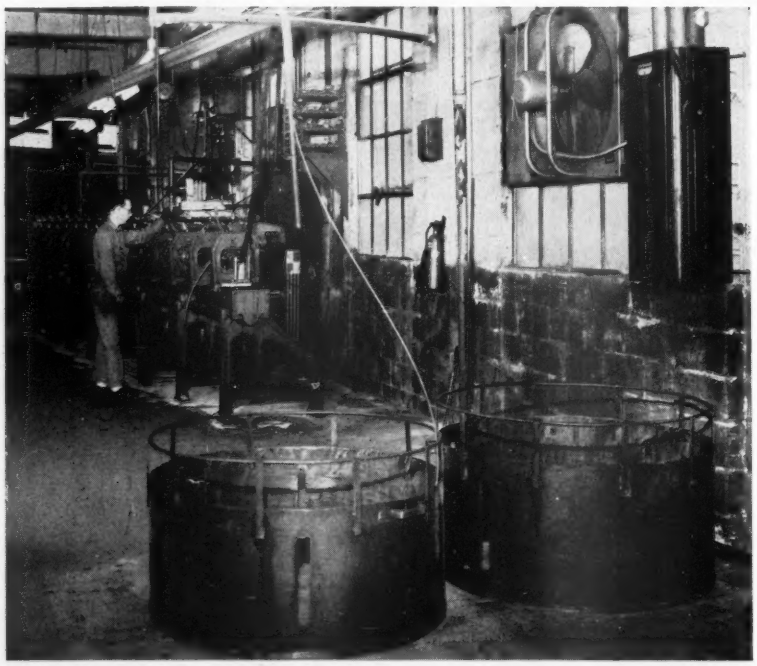


Figure 4 — Exit end of Rod Rolling Mill, where rod is self-coiled into bundles averaging 225 pounds.

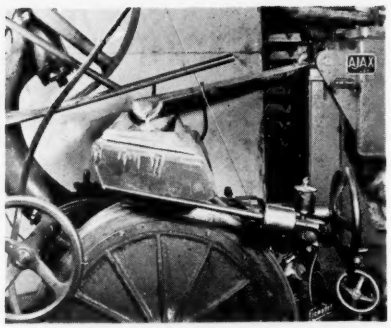


Figure 2 — Holding furnace at extreme right. The ladle that feeds the casting wheel is in the center, above the wheel.

cavity tangentially and downward at the junction of the copper mold and the steel band on the lower, or casting, wheel.

★ ★ ★

Solidification is rapid. Water inside the hub of the lower, casting wheel and water in an outside tank through which the wheel turns extract the heat from the mold efficiently. The cast section continues to travel with the wheel until part way up the side opposite from the point at which the molten aluminum is injected. Then, a stripping device ejects the cast section to one side and the section loops up and back over the wheel through the air into the first pass of the mill. Cotton waste wipers clean and dry the mold cavity and the band before they again receive a molten charge.

★ ★ ★

The casting wheel is 36¼ inches in diameter and revolves at a speed of 1¼ to 2½ rpm. A film of oil on the outside of the steel band evaporates in differing patterns during the casting phase, showing the operator when to slow down or speed up the wheel.

★ ★ ★

The ⅞-inch triangular section was chosen because it is the easiest shape to extract from the wheel mold. This shape also is the best for the unusual 3-roll pass design of the continuous mill. Two corners of the triangular cast section are slightly modified to assist the stripping operation further.

★ ★ ★

The two melting furnaces pour at a temperature of 1275° to 1285°. They are not completely emptied,

(*Please turn to page* 606)

GOSSIP from BRITAIN

Die manufacturers are under fire from the trade unions. So far, they have successfully resisted the introduction of trade unionism in their works, but, for some time past, various unions have been trying to infiltrate. How long the employers will be able to hold out is problematical because the trade unions have one foot in their door, through those firms who have their own die-making departments and where the rest of the labour force is strongly pro-union.

★ ★ ★

Mr. Herbert Smith, chairman of British Ropes Ltd., the biggest firm in the wire-drawing and rope making industry in this country, mirrors the trend of trade being experienced by most wire firms. He stated that fears were entertained during the first half of 1950 that the record sales of 1949 would not be maintained. Sales steadily declined, but recovered sharply towards the year-end, both in tonnage and value, finally constituting an all-time record. Exports were 20% greater in volumn compared with 1949, chiefly owing to increased shipments. Indications that shortage of steel will hamper production in 1951 is now very apparent.

★ ★ ★

By arrangement with Guest, Keen & Nettlefolds Ltd., of Birmingham, Colonel K. Rood, chairman of The United Steel Corporation of South Africa Ltd., are to erect a new plant at Vereenging, Sth. Africa, for the production of wood screws.

★ ★ ★

What reward should a man receive who saves his firm a million dollars? Mr. James Hornby Jolly, boss of Guest, Keen & Nettlefolds, Ltd., the screw makers, received £55½ million from the National Steel Board for the firms' steel mills in South Wales. He immediately sold £46½ millions. Since then the stock has fallen from 100 to 95½; hence, the huge capital saving. The answer is nothing. Because. if Mr. Jolly's income is over £300,000 a year, British Income Tax will take 97½% of any gift the firm may wish to make.

★ ★ ★

The British Industries Fair, this country's major annual industrial exhibition, has more support from the wire industry than any other manufacturing group. Wire machinery (drawing and working), wire, cables and wire work of every description, are represented. This year it was simply display, most firms already having full order, books. New orders—particularly in view of the materials shortage—were an embarrassment. To show is costly, one cannot make out under £4,000, but exhibitors are reluctant to cede their stands lest they lose them for future exhibits.

★ ★ ★

Mr. Sam Richards was well in evidence (with his usual pocketful of loose cigarettes) showing the range of Marshall Richards machines. So was Mr. Davidson of Farmer, Norton & Co., Ltd., keen competitors. Messrs. Rigby, Rylands and Firth were well to the fore showing wire. Wire workers were profuse in numbers. It is said that this country makes over one million bird cages a year, mostly for export, to cite one example. Where do they all go!

★ ★ ★

Wire drawing machinery makers are becoming great travellers in the export drive. Mr. Richards has been covering Spain recently; Mr. Davidson in Sweden; and Mr. Woolfenden of W. H. A. Robertson & Co., Ltd. of Bedford, in France and Belgium. They all report good orders from those countries.

★ ★ ★

When the late Mr. Neville Barron, head of the old established firm of Barron & Crowther of Preston, died, the trade lost one of its most popular figures and the firm more or less integrated. The wire machinery side was eventually taken over by the Martinez family. Father Martinez was chief technical director of Pirelli Cables of Southampton, and the three sons (Cambridge educated and M.A.'s) took over the direction of Barron & Chowther Ltd. Extensive travel 'round the wire mills of Europe completed their technical education and today the firm has recovered its old prestige and several new and revolutionary drawing machines are expected to be announced shortly, after the usual test period under actual working conditions.

HAVE YOU MADE YOUR RESERVATION

to attend the Annual Convention of the Wire Association in October at Chicago?

Hotel reservation cards were mailed to all members earlier this month. If you have not returned yours, will you please do so now?

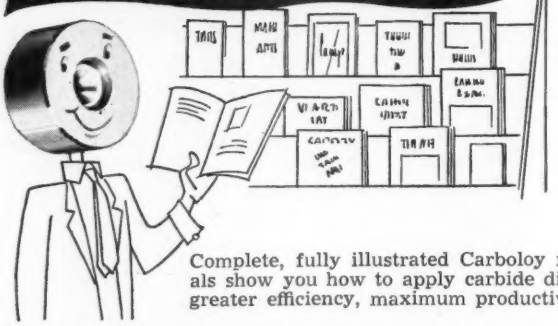
If you are not a member of the Wire Association and are a wire man, we would like you to come and see how our meetings function. Just drop us a line and a reservation card will be sent to you by return mail. See page 556 for details.

THE WIRE ASSOCIATION

RICHARD E. BROWN, Executive Secretary

300 MAIN STREET **STAMFORD, CONN.**

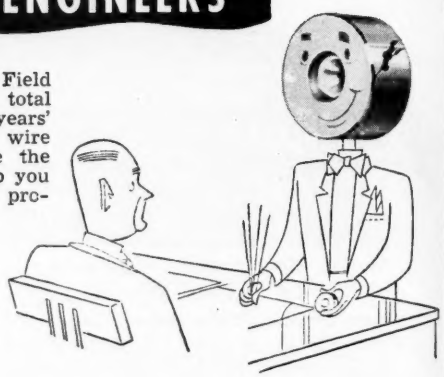
TECHNICAL LITERATURE



Complete, fully illustrated Carboloy manuals show you how to apply carbide dies for greater efficiency, maximum productivity.

FIELD ENGINEERS

Twelve Carboloy Field Engineers, with a total of more than 150 years' experience in the wire die field, welcome the opportunity to help you get maximum die productivity.



INCREASE PRODUCTIVITY,

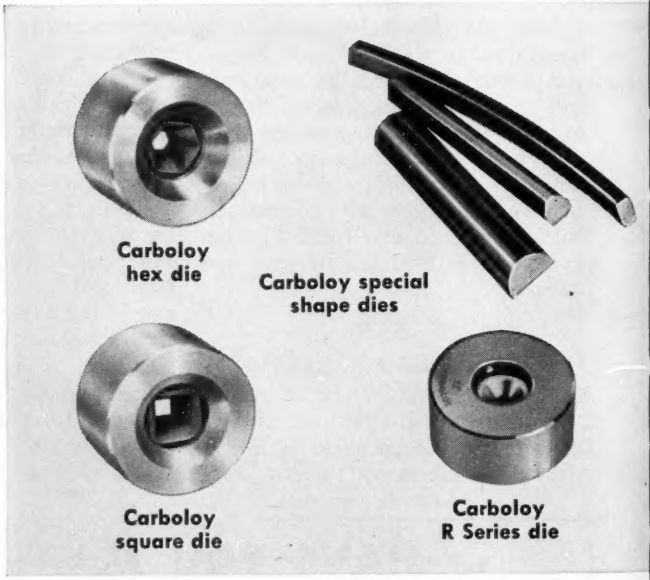
WITH TIME-TESTED

MAKE YOUR carbide dies more productive, last longer by taking advantage of Carboloy services—the most complete program available to the wire industry.

At your service is an experienced staff of field engineers, a comprehensive Die Training School, completely equipped Die Service Centers and up-to-the-minute technical literature.

Carboloy dies, of uniformly high quality, are ready to help, too. Every Carboloy die is backed by separate rigid quality tests, the world's finest carbide production facilities and a conscientious program of continuous grade improvement to assure longest life, maximum productivity.

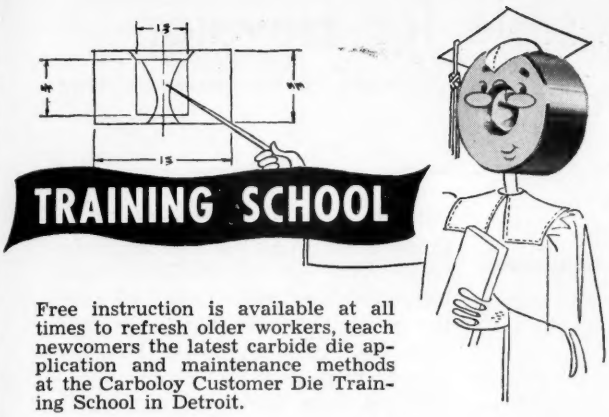
Put these time-tested Carboloy services and dies to work for you now by sending the coupon for further information.



FOR MAXIMUM PRODUCTIVITY...

Specify **CARBOLOY**

THE QUALITY BRAND

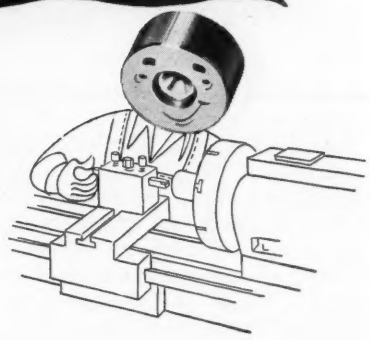


TRAINING SCHOOL

Free instruction is available at all times to refresh older workers, teach newcomers the latest carbide die application and maintenance methods at the Carboloy Customer Die Training School in Detroit.

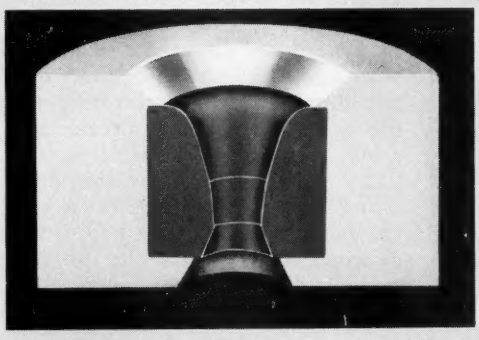
DIE SERVICE CENTERS

Solve your toughest reshaping and refinishing problems, conserve vital carbide dies by using the extensive facilities of Carboloy Die Service Centers in Detroit, Chicago, and Pittsburgh.

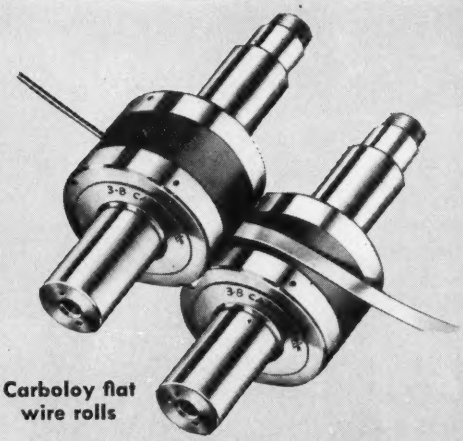


CONSERVE CARBIDE DIES

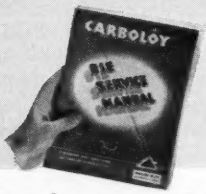
CARBOLOY SERVICES



Note built-in back relief in Carboloy rough-cored dies



Carboloy flat wire rolls



Send coupon today for complete, fully illustrated Carboloy Die Service Manual D-119 and information about other proved Carboloy Services.

"Carboloy" is the trademark for the products of Carboloy Department of General Electric Company

Cemented Carbide Wire, Bar and Tube Drawing Dies

CARBOLOY DEPARTMENT
General Electric Company
11171 E. 8 Mile Road, Detroit 32, Michigan

Gentlemen: Yes, we want to know more about how Carboloy services can help us get maximum die productivity. Send information about—

☐ Field Engineers ☐ Die Service Centers
☐ Training School ☐ Die Service Manual D-119

and also: _____
(Mention types of dies you are interested in)

Name _____ Title _____

Company _____

Address _____

City _____ Zone _____ State _____

Cable Company Responsible for Elevator Accidents

By Francis George
Attorney-at-Law
Pittsfield, Mass.

An elevator cable broke in the Weston Hotel, Chicago, last winter and dropped a load of passengers into the basement. After rescue the passengers sued the hotel, the elevator company, the cable company, the Elevator Signal and Service Company that maintained the elevators and Marshall Field who owned the hotel and leased it to the operators. They won against everyone except the Otis elevator Company.

★ ★ ★

The Wire Rope Corporation who had made the cable attempted to place themselves in the same class as the elevator manufacturer i. e. only a supplier of a part of the finished operating elevator and not responsible for an accident that happened long after they had sold the goods. However, the judge said that the cable could not be considered aside from its use in operation. As Wire Rope had warranted that the cable was sufficiently strong to lift upwards of twelve thousand pounds they were responsible when the cable broke with a load under that amount.

★ ★ ★

Even without a warranty the responsibility of a manufacturer for safe construction does not end when a sale is made. Automobile manufacturers have been held responsible for defects that caused personal injuries after the vehicle has changed hands three or four times. This rule applies to elevator cable manufacturers, the people who have been hurt need not show that the company was careless, or that there was any duty to inspect or oversee the use of the cable. If it breaks and someone is hurt the manufacturer is liable. For a defense he can show that the accident was not caused by the cable, but by the method of use or installation, or that the use was entirely different from the purpose for which the cable was sold.

★ ★ ★

A prudent cable company will carefully specify the purposes for which each cable is sold, and methods of installation. If it does this and these suggestions are violated it can escape liability but if there is only a loose oral statement as to the purpose for which the cable is sold there may be an accident someday that will cost the company 75 or 100 thousand dollars, and you can print a lot of specifications for that price.

MODEL "J" TYPE
AUTOMATIC MICRO-WELD
BUTT WELDERS FOR WELDING STEEL

MICROMETER PRECISION — MICRO-WELD — TRADE MARK REGISTERED

This type welder is available in three Models J-45-S, J-5-S, and J-6-S for welding high and low carbon STEEL wire ranging in size from .060" to .375" diameter.

The welding cycle on these units is automatically completed by one downward stroke of the foot pedal, which clamp the stock being welded, contact the welding switch, and apply the upset pressure on the weld.

All welders are equipped with annealing dies, filing vise, handshears, and mounted on 4-wheel truck.

MICRO PRODUCTS COMPANY
20 NORTH WACKER DRIVE, CHICAGO 6, ILL.
Telephone, State 2-7468

Send in
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1951 Wire Buyers Guide

Government Wire Production Information

New Electrical Connector Developed by Signal Corps.

Details of a double-contact automatically self-sealing electrical connector are now available in a report just released by the Office of Technical Service of the U. S. Department of Commerce.

★ ★ ★

The report, result of a two-year Signal Corps research contract, includes a complete description and engineering drawings not only for the connector parts, but for the necessary production tools to make them.

★ ★ ★

The plug is of the "chamber seal" type, with contact parts exposed only during the making and breaking of connections. It uses the principle of a cork to effect sealing but minimizes the pressure necessary by reducing the seal point on the shell portion to a knife-like edge. Since the connector was intended for D. C. work, polarization is achieved by placing the receptacle's guide slightly off-center.

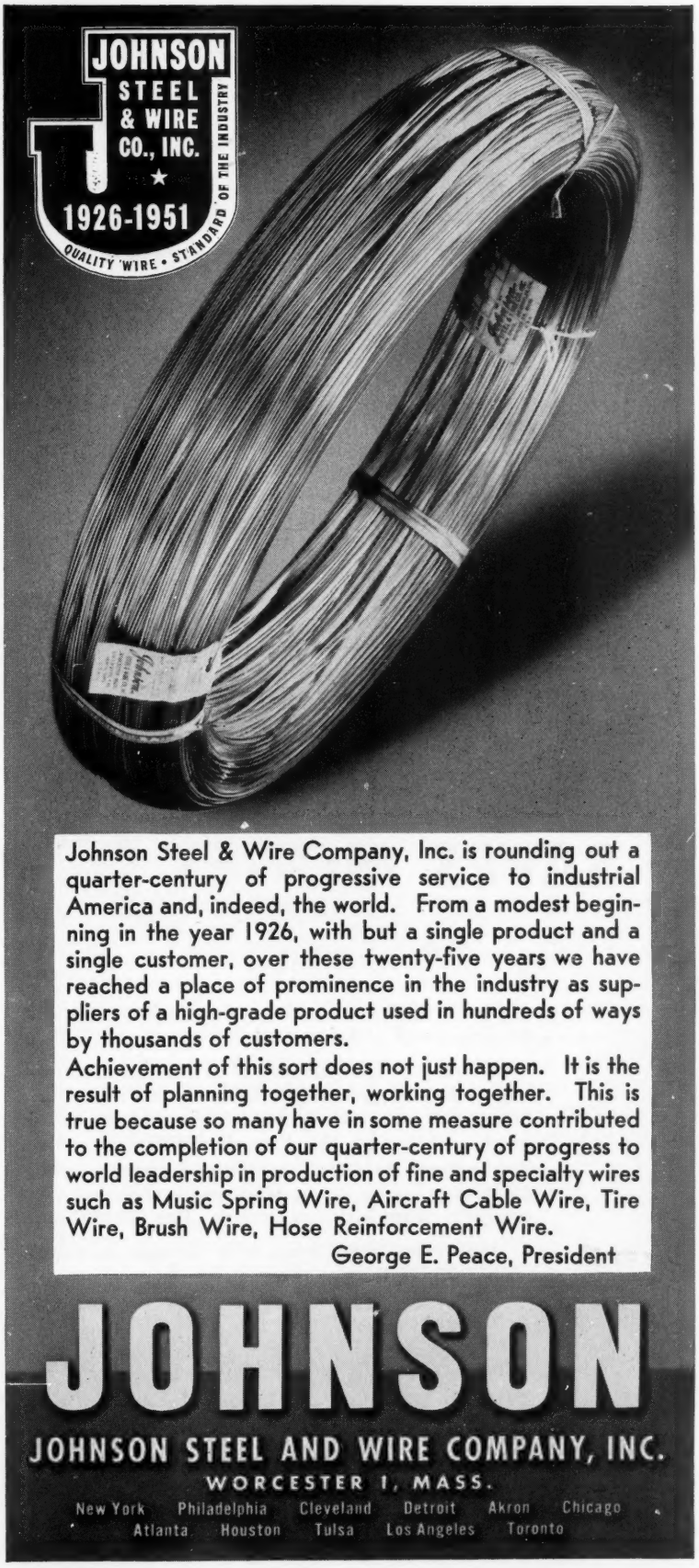
★ ★ ★

Because of the complexity of the design necessary to achieve the properties desired, the report estimates that the self-sealing connector would cost ten to fifteen times as much as a standard connector to produce. Accordingly, replacement of regular-purpose 110-volt equipment with the new connector is recommended. Where the special advantages of the sealed plugs are required however, the report concludes that a suitable design is now available.

★ ★ ★

PB 101 756, Double-Contact Self-Sealing Connector, 77 pages including engineering drawings, sells for $3.50 in microfilm, $10 in photostat. Orders should be addressed to the Library of Congress Photoduplication Service, Publication Board Project, Washington 25, D. C., accompanied by check or money order payable to the Librarian of Congress.

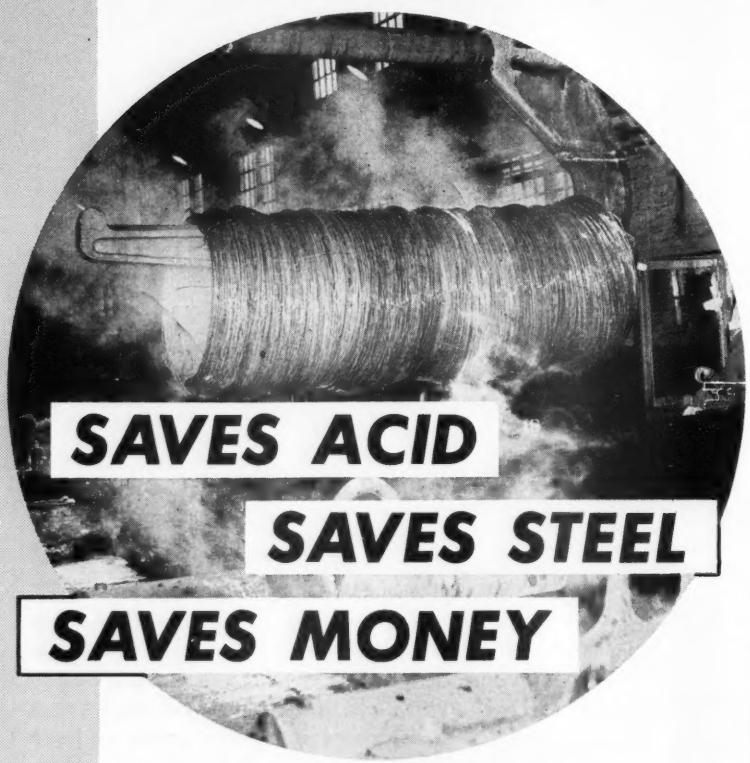
★ ★ ★


JOHNSON
STEEL
& WIRE
CO., INC.
★
1926-1951
QUALITY WIRE • STANDARD OF THE INDUSTRY
Johnson Steel & Wire Company, Inc. is rounding out a quarter-century of progressive service to industrial America and, indeed, the world. From a modest beginning in the year 1926, with but a single product and a single customer, over these twenty-five years we have reached a place of prominence in the industry as suppliers of a high-grade product used in hundreds of ways by thousands of customers.
Achievement of this sort does not just happen. It is the result of planning together, working together. This is true because so many have in some measure contributed to the completion of our quarter-century of progress to world leadership in production of fine and specialty wires such as Music Spring Wire, Aircraft Cable Wire, Tire Wire, Brush Wire, Hose Reinforcement Wire.
George E. Peace, President
JOHNSON
JOHNSON STEEL AND WIRE COMPANY, INC.
WORCESTER 1, MASS.
New York Philadelphia Cleveland Detroit Akron Chicago
Atlanta Houston Tulsa Los Angeles Toronto

Efficient Pickling with . . .

Rodine®

PICKLING ACID INHIBITORS



SAVES ACID

SAVES STEEL

SAVES MONEY

Use RODINE in sulfuric and muriatic acid baths for improved pickling and increased production.

In straight line pickling of wire, rod and tubing, RODINE makes available more metal for drawing by protecting steel from acid attack. In batch pickling of sheet steel, RODINE improves the surface. In rapid, continuous strip pickling, RODINE not only saves acid and metal, but also prevents over-pickling during line shutdowns.

Now, more than ever, it is cheaper to pickle with RODINE than without it.

"RODINE" meets Government Specification No. U.S.N. 51-I-2.

Write for descriptive folder on RODINE Pickling Acid Inhibitors.

AMERICAN CHEMICAL PAINT COMPANY

AMBLER, PENNA.

Nodule Method Measures Adhesion of Electrodeposits

A simple, inexpensive method for determining the adhesion of commercial electrodeposited coatings has been recently developed by the National Bureau of Standards. The new technique[1] involves the electrode-position of an adherent, mushroom-shaped nodule on the surface of the coating to act as a grip for the application of a detaching force. The force required to pull off the nodule, together with a portion of the coating, is then obtained on a spring balance in ordinary mechanical units.

★ ★ ★

The adhesion of an electrodeposit to the basis metal is an important factor in the serviceability of the coating. While very adherent coatings cannot be removed by any ordinary mechanical means, those with a lower degree of adhesion may either peel spontaneously or become detached if the plated object is flexed or abraded. Less adherent coatings are also more susceptible to corrosion, which spreads readily through scratches and imperfections in the surface.

★ ★ ★

Several methods have been suggested for measurement of the adhesion of electrodeposited coatings in commercial production. None of these, however, has been too practical. Some, for example, require specially prepared specimens and careful machining. Others involve the application of heat, which may alter the adhesion of the coating. A further disadvantage of some methods is that they do not express the results of the measurement in simple units having any easily visualized significance.

★ ★ ★

The technique developed by NBS overcomes most of the difficulties associated with the other methods. Full details regarding the process are contained in a Technical Report No. 1541, issued by the National Bureau of Standards, U. S. Dept. of Commerce, Washington 25, D. C.

★ ★ ★

[1]**For further details, see The Nodule method of measuring the adhesion of electrodeposited coatings, by Abner Brenner and Virginia Dare Margan, Proc. Am. Electroplaters' Soc. 37, 51 (1950).**

Government Information

Nearly 400 Industry Advising Committees have been organized and are now functioning in National Production Authority, Defense Minerals Administration, the Munitions Board and other defense agencies. G. Lysle Belsley, director of the NPA's 1AC division and coordinator 1AC activities for all defense agencies, estimates that the number may grow to 800 and have a combined membership of 10 to 12 thousand business men and industrialists.

★ ★ ★

Among the recent meetings have been the following:

Brass Mill Products, sponsored by the Copper Division of the NPA. Officials said the tight copper situation is due to military requirements, slow scrap return and diminished deliveries from abroad. No relief is seen before the end of 1952.

★ ★ ★

Electric Housewares, sponsored by the Consumer Goods Division of NPA. The committee asked for 62 tons of nickel chrome wire to keep the industry operating, during the emergency period, as there is no substitute for this wire for heating units. Nickel was also requested for use where corrosion is high.

★ ★ ★

Copper Wire and Cable Mill, sponsored by the Copper Division NPA. Manufacturers were asked to expedite their reports on their operations and needs, in order to determine third quarter needs. The committee urged the Government to take immediate steps to increase imports of copper and lead and to encourage an increase in the domestic supply.

★ ★ ★

Industrial Diamonds, sponsored by the Miscellaneous Metals and Minerals Division, NPA. Allocation of diamond crushing bort may become necessary as the defense program increases, but no action to allocate bort will be taken until a survey of supplies can be completed.

★ ★ ★

An amendment to regulation NPA M-47, entitled "Use of Iron and Steel" effective July 1, 1951, has the intent of limiting third quarter use of iron and steel in the manufacture of most consumer durable goods to 70% of the base period, which may be the first half of 1950 or the last half of 1949. Small orders of steel are exempted from this regulation.

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for the

1951 Wire Buyers Guide

Hire this Wire

...and lower Your Production Costs with

KEYSTONE

GALVANIZED MB

SPRING WIRE

The pressure is on to save man hours and reduce production costs without sacrificing quality. That's why it will pay you to investigate the advantages of Keystone Galvanized MB Spring Wire.

Keystone's unique process of *drawing after galvanizing* smooths and hardens the zinc coating, increasing the wire's lasting qualities and physical properties. This smooth finish, corrosion resistant wire helps you get increased machine efficiency, increased output per man, and higher quality end products.

MARKET *YOUR* SCRAP NOW!

Houseclean your plant for all worn out and obsolete equipment. Sell it to your local scrap dealer now in order to keep America's steel production expanding.

KEYSTONE

STEEL & WIRE CO.

SPECIAL ANALYSIS WIRE. SETTING NEW STANDARDS OF PERFORMANCE

PEORIA ILLINOIS

Outstanding Personalities of the Wire Industry

New Chief Engineer for James L. Entwistle Company

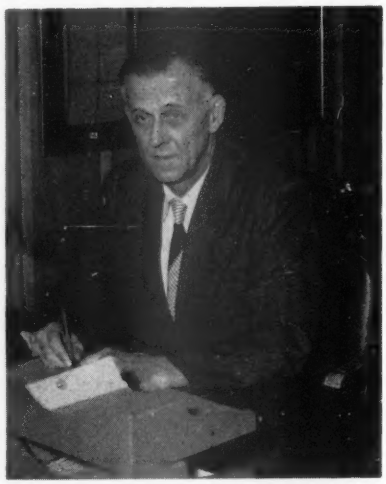
The James L. Entwistle Company of Pawtucket, Rhode Island, builders of machinery for the wire and cable industry, announces the appointment of **Sidney E. Borgeson** as Chief Engineer.

★ ★ ★

He has had over 28 years of experience in the design and development of wire and cable production machinery. He is a graduate of the University of Minnesota, a member of the A. S. M. E. and of the New Jersey Society of Professional Engineers.

★ ★ ★

Mr. Borgeson started as development engineer for Western Electric Company, working on equipment for long distance lines. Here he developed the toroidal coil winders and other telephone equipment. Later, in the General Research Laboratories and the Central Engineering Department of General Cable Corporation, he designed several types of equipment, including high-speed magnet-wire flyers and special equipment for the Signal Corps and Navy. He has set up several plants and developed equipment for the production of various types of wire and cable. His most recent work was setting up an independent production unit for manufacturing 20,000,000 feet of wire monthly, and planning the equipment for the production of spiral 4 cable.



Sidney E. Borgeson, Chief Engineer, The James L. Entwistle Company, Pawtucket, R. I. * *

★ ★ ★

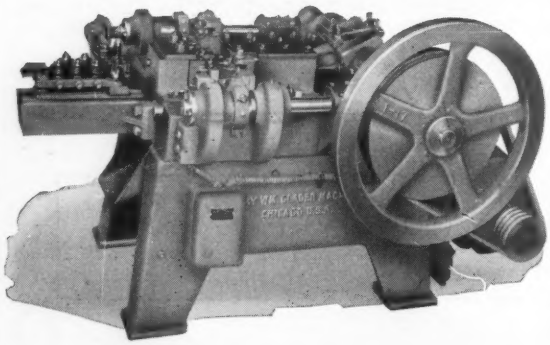
The company's new Chief Engineer has written many papers on developments and new methods in the wire and cable field. During his career as a designer, he has acquired several patents on the equipment developed.

★ ★ ★

The James L. Entwistle Company is planning a development program centered around Mr. Borgeson which will result in major advances in the equipment available for the wire and cable industry.

★ ★ ★

GLADER HIGH SPEED WIRE NAIL MACHINE



MACHINE ARRANGED FOR INDIVIDUAL MOTOR DRIVE

High tonnage output, and low maintenance costs, have resulted in Glader Machines being accepted as standard equipment in every large nail mill built in the United States in the past twenty years.

Glader Machines are operating in most of the wire producing mills throughout the world.

These machines are made in eleven different types and sizes. This enables us to cover the range of sizes of nails produced with the greatest efficiency.

For further information please address,

WM. GLADER MACHINE WORKS
210 No. Racine Ave.
Chicago 7, Illinois

Export Dept.: 122 E. 42nd Street, New York 17, N. Y.

H. B. Clark Elected to Fansteel Board

Herbert B. Clark was elected a director of **Fansteel Metallurgical Corporation** at the recent annual meeting of stockholders, Robert J. Aitchison, Fansteel president, announced.

★ ★ ★

Mr. Clark joined Fansteel in 1939 as sales manager and served in that capacity until 1946, when he was appointed general manager of Vascoloy-Ramet Corporation, a Fansteel subsidiary engaged in the manufacture of tantalum and tungsten carbide cutting tools, dies and wear resisting parts, and Tantung alloy tools and investment castings.

★ ★ ★

Firth Sterling Announces New General Superintendent Carbide Division

Glen A. Wilson has been appointed General Superintendent of the Carbide Division of the **Firth Sterling Steel & Carbide Corporation.**

★ ★ ★

Mr. Wilson was formerly employed as Plant Industrial Engineer at the Reynolds Alloy Co., Sheffield, Alabama. He began his association with Firth Sterling on August 1, 1949, as Industrial Engineer. Following this he served as Chief Industrial Engineer until his present appointment. Mr. Wilson is a graduate of the Georgia Institute of Technology.

Glen A. Wilson, Gen'l Supt., Carbide Div., Firth Sterling

★ ★ ★

Detroit Steel Elects Officers

The Board of Directors of Detroit Steel Corporation at its annual meeting in April elected the following officers for the current year: President, **M. J. Zivian;** Executive Vice President, **Joseph P. Pulte;** Vice Presidents, **Herbert Appleby, H. E. Baughman, Duncan Baxter, P. P. Brown, H. V. Clark, A. G. Pulte;** Secretary-Treasurer, **R. A. Yoder;** Assistant Secretary-Assistant Treasurer, **J. A. Hartman, G. A. Longeway, N. H. Siegel;** Assistant Secretary, **H. L. Thompson.**

★ ★ ★

H. E. Baughman, Portsmouth, Ohio, a new-comer to the Board, will be Vice President In Charge of Portsmouth Operations. Duncan Baxter, Detroit, will be Vice President In Charge of Industrial Relations for all the corporation's plants.

the ROYLE SPIROD* EXTRUDER

A completely new and different concept of electrically heated extruder designed for plastics materials. . . . Higher operating temperatures. . . . Lower operating costs. . . . Radiant heated. . . . Zoned as required throughout cylinder and head. . . . Even and controlled cooling. Royle Spirod Extruders have been field-tested and their stamina proved. Check these features that assure trouble-free operation —positive results.

- Heavy steel members without flanges
- Spirally installed rod type heating elements provide faster and more even distribution of heat
- Radiant heat provides steadier temperatures
- Complete insulation reduces heat loss with substantial power savings
- High watt capacity heating elements provide faster heat at lower cost
- Long life heating elements provide high and sustained operating temperatures
- Separate heating zones controlled by proportioning instruments
- Simple installation should replacements become necessary

*Patent Applied For

JOHN ROYLE & SONS

ROYLE PATERSON N. J. 1880

PIONEERED THE CONTINUOUS EXTRUSION PROCESS IN

London, England — James Day (Machinery) Ltd. — REgent 2430

Home Office — V. M. Hovey J. W. VanRiper — SHerwood 2-8262

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Los Angeles, Cal. — H. M. Royal, Inc. — LOgan 3261

PATERSON 3, NEW JERSEY

He will make his headquarters in Portsmouth.

★ ★ ★

Mr. Baughman has been with the Portsmouth Plant for over 34 years. Starting in the Coke Department in 1917, he became its superintendent in 1939. In 1943 his duties were broadened to include the Blast Furnace Department. When Detroit Steel took over the plant in January, 1950, he was named the Assistant Works Manager under Mr. Ernest Eynon. With Mr. Eynon's retirement last week, Mr. Baughman was moved into the No. 1 position at Portsmouth.

★ ★ ★

E. M. Barber Made Executive Vice President, Pittsburgh Steel

E. Milton Barber has been elected executive vice president and director of **Pittsburgh Steel Company,** it was announced recently by **Avery C. Adams,** president.

★ ★ ★

Mr. Barber has been president of Thomas Steel Company, Warren, Ohio, since 1945.

★ ★ ★

Pittsburgh Steel announced its acquisition of the assets of Thomas Steel Company on May 24th. The purchase has been approved by the boards of both companies and is now subject to approval by the shareholders of the two companies.

★ ★ ★

Before becoming president of Thomas Steel, Mr. Barber was vice president of Columbia Steel Company, Pacific Coast subsidiary of United States Steel. After serving as assistant vice president of engineering, he was placed in complete charge of construction of the Geneva Steel works in Provo, Utah.

★ ★ ★

J. M. Auty Made Vice President Pittsburgh Screw & Bolt

John M. Auty has been elected vice president of **Pittsburgh Screw & Bolt Corporation. William R. Koester** has been named secretary-treasurer.

★ ★ ★

Alexander I. Stayman has been appointed assistant to the president, and **Thomas Toby,** assistant general sales manager.

★ ★ ★

Other appointments include **Gerald J. Garvey** and **Robert W. Dierker** as president and vice president of sales, respectively, of the Gary Screw and Bolt Division of the corporation. **Dale W. Patrick** was named sales manager of the Colona Division, Monaca, Pa.

★ ★ ★

Nopco Transfers John J. Ryan To New Pacific Division

John J. Ryan has been transferred to the newly formed Pacific Division of the **Nopco Chemical Company.**

★ ★ ★

Prior to this appointment, Mr. Ryan was sales representative for the company in the New York-Pennsylvania area. A graduate of North Carolina State College, he has been affiliated with Nopco since 1946. In the Pacific territory he will continue handling the company's broad line of chemical specialties for such processing industries as pulp and paper, tanning, metalworking, textile and so forth. In addition to the Nopco products he will also handle the sales of metallic soaps produced by the Metasap Chemical Company, a Nopco subsidiary, as well as the Nopco line of surface active chemicals, that are now being produced at the company's recently

WIRE SPOOLS, ALL-STEEL, LITHOGRAPHED

Ends and traverses may be shipped separately and assembled easily in your plant on a hand, foot, or power press.

5" and 6½" diameter ends with 1-15/16" diameter traverses.
10½" diameter ends with 3½" diameter traverses.
Traverse lengths up to 12".

J. L. CLARK MANUFACTURING CO.
600 23rd AVENUE • ROCKFORD, ILLINOIS

opened plant at Richmond, California.

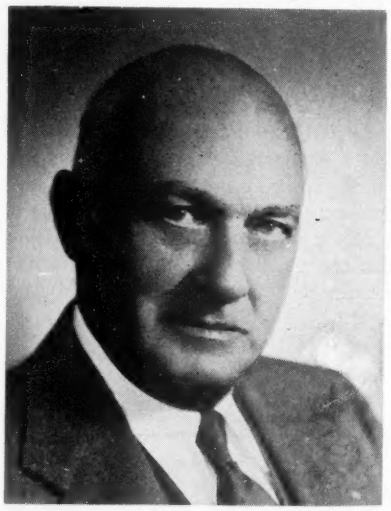
★ ★ ★

George R. Zust, former Assistant Manager of the company's Textile Specialties Division, will replace Mr. Ryan in the New York-Pennsylvania area.

★ ★ ★

R. O. Anderson Loaned to Government As Abrasive Consultant

Ralph O. Anderson, Norton Company district manager in St. Louis, Mo., has been appointed by the National Production Authority to serve



R. O. Anderson, Norton Company, District Manager in St. Louis, Mo.

in its Machinery Division as abrasive consultant. Announcement was made recently by Ralph M. Johnson, Norton Company vice-president in charge of sales.

★ ★ ★

Mr. Anderson will be on loan to the government as a representative of the abrasive industry. He joined Norton Company in 1912 and has served as abrasive engineer and district manager in the midwestern and southwestern territories. He became district manager of the St. Louis sales office when created in 1949. Prior to that he was district manager in Denver, Colorado from 1943 to 1949.

★ ★ ★

Gwynn L. Parrott, abrasive engineer in Illinois, will replace Mr. Anderson as St. Louis district manager. Mr. Parrott entered the Abrasive Division of Norton Company in 1944.

★ ★ ★

Roebling Men in Pennsylvania Wreck

Two Roebling men were killed and another injured in the Pennsylvania Railroad wreck at Bryn Mawr, Pa., on May 18th. The three were returning from a Coal Mining convention in Cleveland.

★ ★ ★

Those killed were **George B. Stoess,** Assistant Sales Manager, 38, Wire Rope Division, and **Vincent L. Daulton,** 47, Philadelphia District Sales Manager.

★ ★ ★

Injured was **Albert Neroni,** 40, Roebling Advertising Manager, who suffered a fractured nose and severe facial lacerations. He was confined in the Bryn Mawr Hospital for two weeks, but is making a satisfactory recovery.

★ ★ ★

Simon Made Plant Superintendent

The Wilson Spring Company of Newark, N. J., has appointed **George C. Simon, Jr.,** to the post of plant superintendent of the Company.

★ ★ ★

JLE
SERVING
THE WIRE
INDUSTRY THROUGHOUT
THE WORLD
JAMES L. ENTWISTLE CO.
◆ Standard Sets of Spark-Testing Equipment
◆ Take-ups and Re-spoolers
◆ Reelers
◆ Coilers
◆ Spoolers
◆ Collapsible Coiling Reels
◆ Wire Sparkers and Accessories
◆ Hand Locators
◆ Electrode Units and Stands
◆ Measuring Machines, Counters and Accessories
◆ Wire Guide Units
◆ Pay-off Reels Stands
◆ Electronic Devices
◆ Conduit Connection Sets
◆ Wire Pre-Heater
◆ Disk Brakes and Controls, Drag Units and Slip Clutches
◆ Wire Marking Machines, Type Strips, Inks
◆ Labelling Machines
◆ Pneumatic Equipment and Controls
◆ Miscellaneous Equipment
◆ Hydraulic Equipment and Controls
◆ Hi-Pot Test Sets
◆ Cable Handling Equipment for Warehouse Use
See page 562 for news of the JLE Heavy Duty Reel Take-Up machines.
JAMES L. ENTWISTLE CO.
43 CHURCH STREET, PAWTUCKET, RHODE ISLAND, U. S. A.
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GENERAL ENGINEERING CO., LTD.
BURY ROAD, RADCLIFFE, LANCASTER, ENGLAND
JLE JLE JLE JLE JLE

David C. Scott

David C. Scott, an internationally known authority in the field of physical testing and president of **Scott Testers, Inc.,** of Providence died May 12 in that city.

★ ★ ★

One of the early members of the American Society for Testing Materials in 1914, he had devoted lifelong study to the testing of textiles, rubber, wire and other materials, and had given many papers before meetings of technical groups and had published articles of a professional nature.

★ ★ ★

He held numerous basic and minor patents related to testing, and he was credited with major improvements in the science of physical testing over four decades.

★ ★ ★

During World War I he had served as technical adviser to the Army Air Corps. Among personal honors was membership in the Textile Institute of Manchester, England, and the Textile Research Institute in this country.

★ ★ ★

Mr. Scott had been an officer of Scott Testers, Inc., and its predecessor company, Henry L. Scott Co., since 1900 and its president since 1936. Many of the tests developed by the company are standard, as are the machines produced to make such tests. Mr. Scott saw the business expand to the point where its equipment is in general use in industrial, foundation, college, and government laboratories here and abroad.

David C. Scott

★ ★ ★

Surviving Mr. Scott are two sons who have in recent years been in charge of the management of Scott Testers, Inc., **James M. Scott,** treasurer and **David C. Scott, Jr.,** secretary.

★ ★ ★

Signode Appointments

The Signode Steel Strapping Company, Chicago, Ill., have announced the election of **J. M. Moon** to the office of vice president. He will continue in his present capacity as director of sales. At the same time the company also appointed Robert Peterson to serve as assistant treasurer.

★ ★ ★

MOSSBERG PRESSED STEEL CORP.

Greater service from a new All Welded Steel Take Off Reel designed to meet present day requirements.

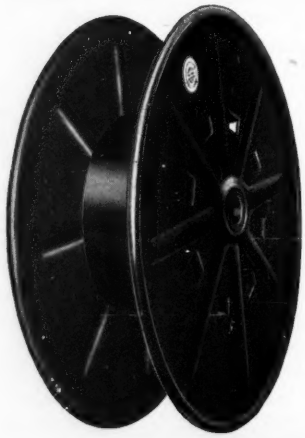
Usual maintenance expense eliminated by adoption of this new design wherein all parts are welded into one homogeneous unit.

Reel sides are embossed with radial reinforcing ribs for increased rigidity with rolled edges for additional strength and to facilitate handling.

Complete line of spools and reels for both processing and shipping all kinds of bare and insulated wires and cables. (Send for Catalogue W-104)

MOSSBERG
Pressed Steel Corp.
18 WEST STREET
ATTLEBORO, MASSACHUSETTS, U. S. A.

James Day (Machinery), Ltd., 90 Regent Street, London, W.I., England



All Welded Steel
Take Off Reel

A Review of Recent Wire Patents

No. 2,550,660, PROCESS FOR PRODUCING ADHERENT COATINGS ON STAINLESS STEEL TO FACILITATE DRAWING OPERATIONS, patented May 1, 1951 by Paul Amundsen, Detroit, Mich., and John A. Hendricks, Lakewood, Ohio, assignors, by mesne assignments, to Parker Rust Proof Company, Detroit, Mich., a corporation of Michigan.

In this patent the new step consists of immersing the stainless steel in an aqueous bath consisting essentially of oxalic acid, a sulfur compound containing oxygen which yields sulfur dioxide and sulfur under the conditions of the coating bath, and an activator consisting of a soluble alkali halide for a time interval sufficient to form a coating and at a reactive temperature within the range of from approximately room temperature to approximately 190°F.

★ ★ ★

No. 2,550,709, METHOD OF COATING FERROUS METALS WITH MAGNESIUM AND MAGNESIUM BASE ALLOYS, patented May 1, 1951 by Clyde A. Moe, Sanford, John S. Peake, Midland and George T. Sermon, Bay City, Mich., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware.

The surface of the ferrous article is first fluxed and then brought into contact with the coating metal and then held in the molten coating metal, so as to permit the same to displace the flux from and wet the surface of the article and then withdrawn.

★ ★ ★

No. 2,551,358, TERMINAL WIRING APPARATUS, patented May 1, 1951 by Karl H. Andren, Greenfield, Wis., assignor, by mesne assignments, to Western Electric Company, Incorporated, New York, N. Y., a corporation of New York.

There are eighteen claims to this patent for attaching the terminals to wires.

★ ★ ★

No. 2,551,521, COIL WINDING APPARATUS FOR MAGNETIC CORES, patented May 1, 1951 by Gordon R. Anderson and James K. Gibbs, Beloit, Wis., assignors to Fairbanks, Morse & Co., Chicago, Ill., a corporation of Illinois.

For forming and winding coils in the slots of magnetic core members, the inventors provide a coil forming member provided as a single block element adapted for positionment on a core to span a selected pair of the core slots, and a device operable to lead a line of wire about the forming member to form coil loops, this forming member having opposite curved camming surfaces and shoulders at the ends of the camming surfaces engaged by the wire loops as they are formed, effective to cause displacement of the wire loops toward the core to seat portions thereof in the pair of core slots.

★ ★ ★

No. 2,551,546, FLEXIBLE CABLE, patented May 1, 1951 by Sydney Pile, London, England, assignor to Teleflex Products Limited, London, England, a British company.

This cable comprises a multistranded tension transmitting core laid with a long pitch helix, a circular section wire multistart compression-transmitting lay of comparatively small pitch wound around the core with the turns of the lay in contact, a fillet wire of comparatively small diameter around the core between certain of the turns of the compression-transmitting lay, and a helix of circular section wire of the same diameter as the first named circular section wire and having the same pitch and hand as the compression-transmitting lay, wound on the compression-transmitting lay to nest in certain of the helical recesses on its exterior surface and to project beyond the lay in such manner as to leave a groove between its own turns.

★ ★ ★

No. 2,551,978, WIRE SCOOP, patented May 8, 1951 by Mahlon J. Smith, Niles, Mich., assignor to Michigan Wire Goods Company, Niles, Mich., a corporation of Michigan.

Except for the handle this scoop is formed wholly of wire.

★ ★ ★

No. 2,552,594, COIL PACKAGE patented May 15, 1951 by Benjamin B. Scott, Jr., Pittsburgh, Pa.

Complete Description and Drawings of Patents May Be Had for 50 cents, outside the United States and Canada $1.00. Address, Wire & Wire Products, 300 Main St., Stamford, Conn.

DAVIS EQUIPMENT . . .

FOR ELECTRIC WIRE MANUFACTURE

AUTOMATIC SPARK TESTER — For the accurate location of dielectric faults in insulating wire coating. Used in continuous line with plastic extruders or curing equipment. Voltage range of 3,000 to 16,000 volts.

CAPSTAN — Motor-driven, variable speed, for use with high-speed plastic extruders. Standard speeds of 100 to 1500 r.p.m. Higher speed gearing can be provided.

PAY-OFF STAND — Controls tension at wire and brakes automatically and smoothly.

TAKE-UP STAND — Automatically stops when dielectric faults are indicated by the SPARKER. Designed particularly for use with high-speed plastic covering machines.

AUTOMATIC RE-SPOOLER—Layer winds parallel cords. Has motor driven traverse with adjusting stops. Good not only for insulated wire, but for bare wire.

DAVIS EQUIPMENT IS RUGGED AND RELIABLE

Design for continuous, fast, precision operation.

Write us today for detailed information!

DAVIS EQUIPMENT

THE R. L. DAVIS ELECTRIC CO., INC. • WALLINGFORD, CONN.

SPARK TESTERS • SPOOLERS • TAKE-UPS • CAPSTANS

The package comprises a tubular wall surrounding the coil, two circular end members secured to the ends of the wall, at least one of the members being provided with a payout aperture, a tubular liner within the wall and encircling the coil and making a snug fit about the outermost layer of turns thereof, an adhesive means releasably securing the turns of the outer layer to the inner surface of their liner, the liner being at least sufficiently stiff to prevent inward collapse thereof during the paying out of the outermost layer of turns of the coil.

★ ★ ★

No. 2,552,859 CABLE OPERATION, patented May 15, 1951 by Romeo M. Nardone, Teaneck, N. J., assignor to Joseph J. Mascuch, Maplewood, N. Y.

A cable winding machine is provided including drum-supporting cylinders one containing a planetary gear train and the other containing a clutch.

★ ★ ★

No. 2,552,983. BOTTLE STERILIZER RACK, patented May 15, 1951 by Gladys B. Lee, Washington, D. C.

The rack is constructed wholly of bent wire.

★ ★ ★

No. 2,553,666. METHOD OF IMPREGNATING AND COOLING ELECTRIC WINDINGS, patented May 22, 1951 by Ian C. McKechnie, Detroit, Mich., assignor to Primeweld Corporation, Detroit, Mich., a corporation of Michigan.

Here the method consists of forming a coil with a number of turns of electric conductors and then impregnating this coil with a mixture of insulating varnish and aluminum oxide in the proportions of approximately 1½ lbs. of aluminum oxide to a gallon of varnish.

★ ★ ★

No. 2,553,706, STAINLESS STEEL SPRING, patented May 22, 1951 by George N. Goller, Baltimore, Md., assignor to Armco Steel Corporation, a corporation of Ohio.

Cold-worked and precipitation-hardened stainless steel wire, sheet and strip springs are provided having a proportional limit of about 65,000 to 195,000 p.s.i. or more and containing in approximate percentages, 16.5% to 18.5% chromium, from 2.85% to 5.60% nickel, 3.0% to 5.0% copper, carbon up to 0.16% and nitrogen up to 0.13% together not exceeding 0.21%, and the remainder substantially all iron having been subjected to annealing at 1700° F. to 2100° F. cold-working 5% to 90%, and precipitation treatment at 800° F. to 950° F.

★ ★ ★

No. 2,553,707, STAINLESS STEEL SPRING, patented May 22, 1951 by George N. Goller, Baltimore, Md., assignor to Armco Steel Corporation, a corporation of Ohio.

Here the material has a proportional limit of about 40,000 to 230,000 p. s. i. or more, the steel containing chromium and nickel, carbon between about 0.02% and 0.12%, about 0.50% to 2.50% aluminum, from incidental amounts up to approximately 8.0% manganese, from incidental amounts up to about 2.0% silicon, and the remainder substantially all iron, and the steel having been subjected to annealing, slight to extensive cold working, and to precipitation heat treatment at about 700° F to 1000° F. for long enough time to increase the elastic properties.

★ ★ ★

No. 2,553,796, SPRING COILING MACHINE patented May 22, 1951 by Jacques Stussi, Berkeley, Calif., assignor to Marchant Calculating Machine Company, a corporation of California.

Small torsion springs of wire are fashioned and collected on a length of wire. Special means is provided for controlling the free end of the wire stock.

★ ★ ★

No. 2,553,933, LATERALLY EXPANDIBLE SHOE TREE, patented May 22, 1951 by Gerardo Ola, Stockton, Calif.

This tree is made up wholly of spring wire.

★ ★ ★

No. 2,554,139, PRODUCTION OF PHOSPHATE COATINGS OF METAL SURFACES, patented May 22, 1951 by Royston Fraser Drysdale, Croydon, England, assignor to The Walterisation Company Limited, Croydon, England.

It is said the coatings are applicable to iron.

★ ★ ★

No. 2,554,615, WIRE COIL CONTAINER, patented May 29, 1951 by Albert Bertin Dahle, Madison, Wis.

A box is provided to contain and dispense flat coils of wire.

★ ★ ★

How About Your ADVERTISING for the Convention?

October is the big month—for the annual Wire Association Convention in Chicago.

WIRE AND WIRE PRODUCTS for October is the Convention Issue. It offers all suppliers exceptional advertising values. If you make products for our field, you should be represented in our advertising pages in October with something outstanding.

Many advertisers have already made such arrangements. To all others—present advertisers and non-advertisers—a cordial invitation is extended to make the most of this important special issue's opportunities.

Please make your plans promptly—rates will be sent upon request if you do not have them.

Forms close September 1st.

WIRE AND WIRE PRODUCTS

300 Main Street Stamford, Conn.

When you write an ADVERTISER for prices and information, PLEASE MENTION the fact that you saw his ad in WIRE AND WIRE PRODUCTS. It identifies your inquiry and expedites service.

New Diamond Compound For Carbide Dies Announced by Elgin

After intensive research and actual field testing in plants polishing carbide dies, the Industrial Products Division of the Elgin National Watch Company has announced the availability of a new diamond abrasive compound prepared especially for sizing and polishing carbide wire drawing and heading dies. The new compound is an addition to the company's standard diamond compound line and will be marketed under the trade name, DYMO-C.

★ ★ ★

Tests conducted in the field have shown DYMO-C to cut up to 20% faster than diamond-olive oil mixtures when applied to carbide. DYMO-C is delivered ready for use; no mixing is required. Other specific advantages of new DYMO-C for sizing and polishing carbide wire drawing, extrusion and heading dies are proper viscosity for convenient application, resistance to slinging and an inherent property of working down the lapping stick or pin to the actual work area.

★ ★ ★

In addition to these specific advantages, new DYMO-C embodies all of the features of standard Elgin DYMO Diamond Compound — convenience of application, resistance to drying out, deterioration or settling and uniformly precise grading of diamond particles.

★ ★ ★

All production processes involved in the preparation of new DYMO-C, from crushing of pure diamond to final compounding, are performed by Elgin under rigid laboratory control. Grading of diamond particles is certified to be in accordance with U. S. Bureau of Standards specifications.

★ ★ ★

For additional information, address inquiries to the Industrial Products Division, Elgin National Watch Company, Elgin, Illinois.

★ ★ ★

Norton to Build New Plant

An expansion plan costing $6,000,000, increasing **Norton Company's** capacity to make grinding and lapping machines, was announced recently by **Milton P. Higgins**, president.

★ ★ ★

To meet demands of the present defense effort, a new 6½-acre plant for the manufacture of Norton grinding machines will be erected on Brooks Street in Worcester.

★ ★ ★

The new plant will consist of a 740-foot by 300-foot factory joining a 360-foot by 100-foot office building. A large parking area adjoins the plant site.

★ ★ ★

Of single story, modern construction, the unit will provide 275,000 sq. ft. of working space and enlarge the company's machine tool manufacture by 50 to 60 per cent.

★ ★ ★

Present facilities of Norton's Grinding Machine Division on New Bond Street will continue to be utilized during the present emergency.

★ ★ ★

The most modern design techniques known to machine tool production will go into this new plant, which will be one of the largest single units for grinding machine manufacture in the world.

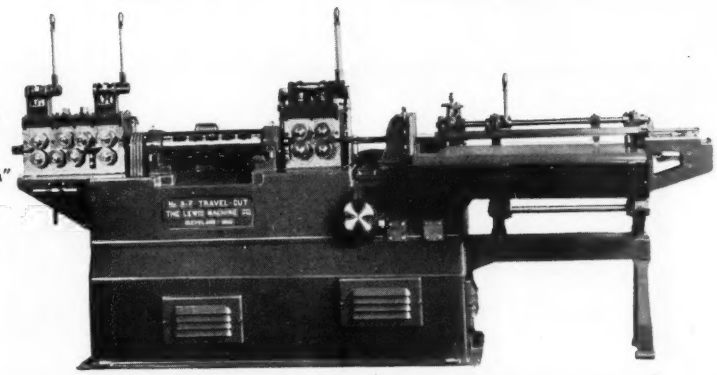
★ ★ ★

Fast, Accurate, Economical

STRAIGHTENING and CUTTING

with LEWIS **TRAVEL-CUT**

MACHINES



22 Models to handle from 1/16" to ¾" Round, Hex, Flat, Shapes.

Simple in design, rigid in construction, Lewis TRAVEL CUT will deliver continuous dependable service under the most severe, high production conditions—day in, day out. Feeds wire from the coil, straightens accurately, gauges to uniform length, and cuts clean without stopping the wire. For steel, brass, aluminum and alloy wire. Cut your cutting costs with the Lewis TRAVEL CUT. Full details on request.

Exclusive Representatives

EAST: Penn Machinery Co., 117 North Third Street, Philadelphia 6, Penn.

MIDDLE WEST: Steel & Wire Machinery Co., 15457 Euclid Ave., Cleveland 12, O.

CENTRAL: Moslo Machinery Co., 2443 Prospect Avenue, Cleveland 15, Ohio.

WEST COAST: Hoffman & Heartt, 3005 So. Grand Ave., Los Angeles 7, California

CANADIAN: Empire Engineering Co., 11 Wellington St. E., Toronto 1, Ontario.

CONTINENTAL EUROPE: Gaston E. Marbaix Ltd., Devonshire House Vicarage Crescent, London S. W. 11, England.

The LEWIS MACHINE Company

3441 E. 76th Street, Cleveland 27, Ohio

Also agents in Paris, Stockholm, Rotterdam, Brussels, Zurich, Milan, Bombay and Melbourne

New Copper Alloy Developed by American Brass

The American Brass Company recently announced the development of "Formbrite" Copper Alloy Sheet, Strip, Wire, Rod and Tube. An unusual combination of physical and fabricating qualities are claimed for the process. Manufacture involves a special procedure of rolling or drawing and annealing brass containing 63% to 90% copper to obtain exceptionally fine grain-size (about .008 mm).

★ ★ ★

Physically the metal is stronger, harder and "springier" than ordinary drawing brass, yet retains remarkable ductility for deep drawing, forming and cold upsetting. Its harder surface tends to resist abrasion and scratching. Formbrite can be supplied equivalent to A.S.T.M. Specifications for either quarter or half-hard stock.

★ ★ ★

Sheet and strip manufactured by this method is offered for practically all drawing brass purposes. Because of its initial high strength and stiffness, cold fabricated parts acquire added strength and stiffness and frequently can be made of thinner metal than if the usual deep drawing brass were used.

★ ★ ★

In the manufacture of wire products, Formbrite machines and threads with ease and has proven to be ideal for rivets, wood and machine screws.

★ ★ ★

Formbrite costs no more than ordinary drawing brass. Millions of pounds of it were made and marketed before the product was announced. In introducing it, a kit of two sample cups, one Formbrite and one ordinary drawing brass, is being offered so that a comparison can be made. The kit, with a folder describing the product, may be obtained from The American Brass Company, Waterbury 20, Connecticut.

★ ★ ★

New Rust-Proofing Process

Recommended as a replacement for cadmium or zinc in many rust-proofing applications, superior corrosion resistance is credited to Perm-Cote, a new phosphate coating material developed by **Detrex Corporation.**

★ ★ ★

When immersed in a solution of the material, iron and steel surfaces are chemically converted into a dark gray, uniform, dense, non-metallic phosphate coating. After rinsing, the highly absorbent coating is impregnated with a rust-proofing oil known as Perm-Oil, giving the products a permanent corrosion-proof layer that is dry to the touch.

★ ★ ★

Standard salt spray tests indicate a resistance well in excess of the 36 hours required in US Army Specification 57-0-2c, Type II, Class B.

★ ★ ★

Typical applications for Perm-Cote are: Metal fasteners, springs, hardware and hand tools, appliances, sheet metal parts, rockets, clips and links, mortar shells, etc.

★ ★ ★

As You Were Able to See Demonstrated in May, Insist upon the BEST . . .

The **POURTIER** *HIGH-SPEED*
INDIVIDUAL INSULATING MACHINE

INDIVIDUAL HEAD, handling wire sizes of 7 to 32 A.W.G. Other models made with up to four (4) serving bowls.

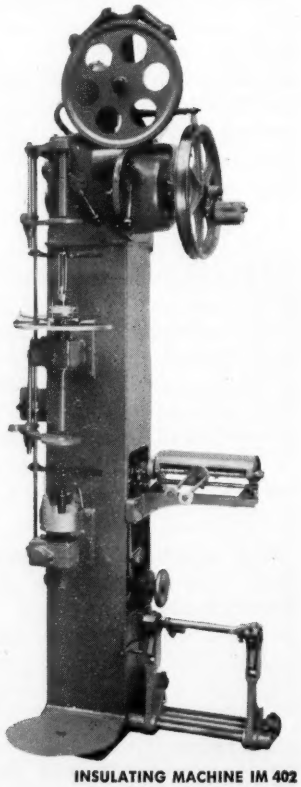
POURTIER MACHINES will serve cotton, paper, cambric, fiberglas, silk, nylon and cellulose acetate at speeds of 4500 r.p.m.

EQUIPPED WITH:
8 speed gear box for the haul-off capstan, automatic central lubrication and slow starting mechanism. Speeds easily changed. Bowls with compensator controlling the unrolling of the bobbin and a quick stopping device, in case of breakage of insulating material. Special control to change the direction of the motion of the heads. Traverse motion's speed and displacement easy to set up.

Machines are built to meet AMERICAN STANDARDS

SHORT DELIVERIES — LOW PRICES

POURTIER MACHINES
153 RUE GALLIENI, ROMAINVILLE-SEINE, FRANCE



INSULATING MACHINE IM 402

Full information, including corroborative tests made by government agencies and private-industry, is available upon request. Address replies to: Detrex Corporation, Box 501, Detroit 32, Michigan.

★ ★ ★

New Carbon Correction Annealing Furnace

A continuous carbon correction annealing furnace installed at the Massillon, Ohio plant of the Union Drawn Steel Division of Republic Steel Corporation is one of the latest developments in the steel industry.

★ ★ ★

The world's first furnace of its type, in one continuous operation it both anneals steel bars and restores to the surface of the bars carbon burnt out by previous hot working operations.

★ ★ ★

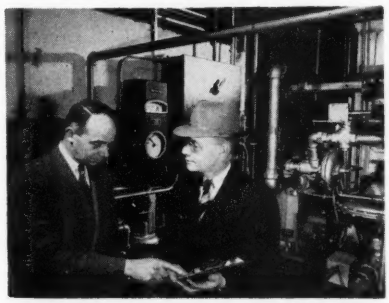
The furnace was built and installed by a Toledo firm to specifications drawn by **J. D. Armour**, chief metallurgist of the Union Drawn Steel Division.

★ ★ ★

In old style annealing, carbon was lost from the surface of steel bars. This decarburization made the surface of the bars too soft for use in many industries, necessitating the removal of the low carbon surface by machining or grinding.

★ ★ ★

In the new continuous furnace atmospheric conditioning units carry gases containing carbon to the annealing furnace. These gases prevent surface carbon loss in annealing and correct any surface decarburization from previous heat treating operations.



H. B. Anderson, Asst. Supt. of Massillon Plant and (right) J. D. Armour Cht. Met. Union Drawn Steel Division checking figures on performance of atmospheric conditioning units.

★ ★ ★

By its use it is possible to eliminate grinding or machining operations and to save valuable steel formerly lost in these operations.

★ ★ ★

Bars produced in this furnace at Union Drawn, Massillon, will be widely used in the farm equipment, automotive, machine tool, hardware and household appliance industries.

★ ★ ★

The new continuous annealing furnace is a further development of a carbon correction process in annealing bars developed by Union Drawn metallurgists during World War II.

★ ★ ★

New Tensolite Miniature Insulated Wires and Cables

Tensolite Insulated Wire Co., Inc., of Tarrytown, New York, announces production of new tensulated minia-

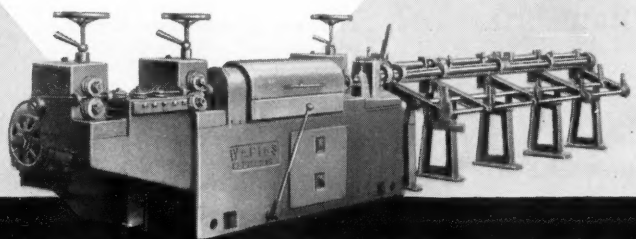
WAFIOS

WIRE-WORKING MACHINERY

Wire Netting Machines for Chain Link, Hexagonal Mesh, Poultry Netting, Field Fence. Crimping, Barb Wire and Staple Machines. Spring Coilers. Spring End Grinding Automatics. Loop Benders. Upholstery Spring and Wire Mattress Machines. Wire Nail Machinery. Chain Formers. Chain Welders. Straightening and Cutting Machines. Multi-Slide Wire and Strip Forming Machines. Special Machinery for the making of Paper Clips, Lock Washers, Bale Ties, Key Rings, Tin Openers, Wire Bag Ties, etc. Automatics for Flexible Metallic Tubing.

WAFIOS

SINCE 1893



MASCHINENFABRIK WAFIOS

WAGNER, FICKER & SCHMID REUTLINGEN 3 / WURTT. GERMANY

ture wires so small that 350 wires pass through half a paper clip. Each wire consists of four strands of No. 40 copper wire so that 1400 strands occupy an area of ¼" x 5/8".

★ ★ ★

This new degree of miniaturization was made possible by tensulation, the exclusive development of the **Tensolite Insulated Wire Co., Inc.** This new process makes it practical to provide low voltage, **hookup wires, shielded lead wires,** and small **flexible cables** that are tailor-made to suit the special needs of those who use them. The distinctive feature of this new process is its use of thermo plastic, thermo elastic and other film material in tape form—applied parallel to the conductor after this film has been heated to the precise temperature required for complete lamination and coalescense. It is then instantly wrapped and drawn in layers until the desired wall thickness is obtained. Additional heat and pressure, applied from all directions, assures a perfect dielectric coating. The conductors, cabled or singly, may then be covered with metal or fabric braid, and other coatings for special applications. Although no dies are used, insulating wall is uniform, free from pinholes, lightweight and small in size.

★ ★ ★

Production of tensulated conductors is devoted principally to the lighter and more flexible stranded conductors composed of tinsel or finer gauge wires for instrument cordage, hook-up wire, resistance wire and flexible cables. Tensulated insulators withstand tropic, arctic, submarine, and airborne conditions. Various colors are available in tensulated coverings and additional coding may be obtained by use of plastic inlays, colored thread tracers and other means.

★ ★ ★

Readers are invited to request complete information on the new tensulation process and its many advantages relative to smaller gauge, flexible electrical conductors. Please address requests: **Tensolite Insulated Wire Co., Inc.,** Tarrytown, N. Y.

★ ★ ★

Details of Union Wire Rope Expansion

The Union Wire Rope Corporation, Kansas City, Missouri, has been adding to its facilities to keep pace with the demand for its wire rope.

★ ★ ★

In 1950 a new 100 by 200 foot building was added to house its galvanizing equipment, the wet drawing machines and some specialty heat treating furnaces. A new patenting furnace has been installed and is now ready to run, giving them a total of six such furnaces. This necessitated a 100 x 100 foot extension to their patenting building, which was recently completed.

★ ★ ★

There is now in the process of construction another new building, approximately 175 x 230 feet, to house the wire drawing equipment. Into this building will go twenty-one new wire drawing machines built to their own designs.

★ ★ ★

These facilities, which will involve total expenditures of about $2,000,000.00, will increase Union's monthly capacity by 2,000 tons, giving the company a total wire capacity of 5,000 tons per month. All of these new facilities will be in operation before the end of 1951.

Add up these HOUGHTO-DRAW benefits

and you'll never again use Lime

in **BAR DRAWING!**

Cleaner . . Houghto-Draw is cleaner, easier to handle compared with messy lime coatings.

Faster . . Takes less time to bring Houghto-Draw solution to proper working temperature.

Simpler . . Ordinary cleaning processes remove Houghto-Draw's thin film coating from work.

Stronger . . Rupture-proof Houghto-Draw adheres to metal under severest pressures.

Safer . . Lubricates with "controlled friction" to provide non-welding, chatter-free drawing.

Better Results! Unlike lime, Houghto-Draw Dry Film Compound keeps bar surface smooth and bright. Adds extra salability. Helps you improve bar quality and increase output as well.

Get Complete Information on

HOUGHTO-DRAW DRY FILM DRAWING COMPOUND

. . . a product of

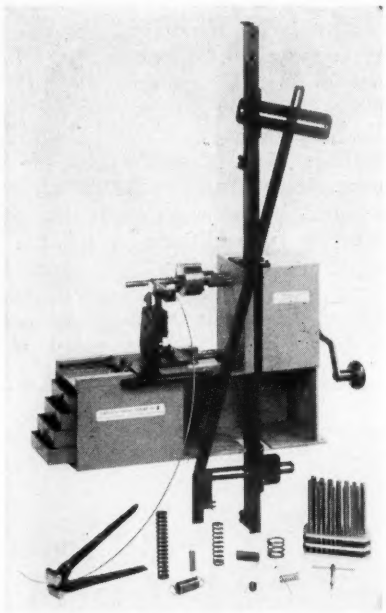
E F HOUGHTON & CO.

PHILADELPHIA · CHICAGO · DETROIT · SAN FRANCISCO

Ready to give you on-the-job service . . .

Spring Coiling Machine

A new hand-operated spring coiling machine is now available for making rather large compression, extension and torsion springs. This new COILER No. 2, supplements an earlier and smaller model No. 1 (now extensively used in many manufacturing plants), and has twice the capacity of the smaller machine. It is especially useful for making experimental or sample springs and for short production runs up to about 500 pieces as the set-up time is usually less than 5 minutes and the output is up to 300 precision springs per hour. Compression springs can be wound up to 8 in. long with any number of coils up to 30, to any pitch up to 1 in., and the end coils are closed or squared automatically on both ends. Extension and torsion springs can be wound tight or loose, up to 8 in. long, either left or right hand, up to 150 coils, with extended arms on both ends up to 5 in. long. Outside diameters up to 2 in. and wire diameters from .041 in. to .156 in. can be coiled. An arbor rack with 29 arbors, 7 coiling points and a wire cutter are included. Net weight 70 lbs. Full details may be secured from **The Carlson Co.**, 277 Broadway, New York 7, N. Y.



Carlson's New Spring Coiler No. 2 * *

★ ★ ★

To Accelerate Metals Development as a Department of General Electric

Carboloy Company, Inc., Detroit, became the Carboloy Department of General Electric Company, effective June 30th, is of far broader significance than at first appears, it was announced in June by **K. R. Beardslee.**

★ ★ ★

Mr. Beardslee, who has been President of Carboloy Company and will continue as General Manager of the new G. E. Department, revealed that the corporate shift is in line with a vast potential expansion of the activities, capacity and products of the Carboloy organization.

★ ★ ★

To all practical purposes, Mr. Beardslee said, the change does not affect our suppliers, district offices, or distributors, or our present marketing and purchasing procedures, or present management personnel, it will materially facilitate expansion of overall Carboloy Department activities.

★ ★ ★

The Specialists in Wire-Straightening and Wire-Cutting!

Diameter Range 1/16" to .005"

Our motto...Precision

Wire men everywhere concede that nobody in the world can match our precision straightening and cutting. This reputation springs from almost two decades of flawless workmanship for the automobile, aircraft, radio, television, communications, toy and textile industries.

Length tolerances in the ten thousandths of an inch are routine here. Wire ends show no burrs. Every day, tons of soft and hard wire are cut anywhere from fractions of inches up to 20 feet.

Don't hesitate to bring your wire straightening and cutting problems to Pittsburgh Cut Wire Company.

Straightening and Cutting All Types of Wire . . .

NICKEL
STAINLESS STEEL
BRONZE
BRASS
COPPER
ALLOY WIRE
MUSIC WIRE
TAG WIRE
FLORIST WIRE

Write Today

For Information on Your Wire Problems

Manufacturers of the famous ARMA PAPER CLIP

Pittsburgh CUT WIRE COMPANY

1112 - 20 GALVESTON AVENUE • PITTSBURGH 12, PA.

TELEPHONE: GEdar 1-4702

Reprint of Lubricant Paper Available

Walter A. Smigel and **Dr. H. Grey Verner** of the **R. H. Miller Co.**, of Homer, New York, recently published a technical article entitled "Metal-Drawing Lubricants for Wire, Tubing and Sheet Steel." This paper was originally presented by Mr. Smigel at a recent meeting of the Association of Iron and Steel Engineers in Cleveland, Ohio.

★ ★ ★

In this article, modern methods in the cold-drawing of steel are considered with particular emphasis on the role played by lubricants. Prefaced by a short theoretical discussion, the paper summarizes current practices in the use of lubricants. Some of the important factors which are discussed include the use of chemical undercoatings, the composition of the metal being drawn, the treatment prior to drawing, the conditions under which the metal-forming takes place, and the subsequent operations to be done on the finished wire. Consideration is given to the physical and chemical properties which make for an efficient lubricant. The paper includes practical suggestions to be followed in choosing a satisfactory lubricant and mention is made of certain special lubricants and recent developments in the metal-working field.

★ ★ ★

Mr. Smigel, a graduate of Case School of Applied Science, has had nearly 20 years' experience in the field of lubrication. Prior to joining the R. H. Miller Co. he was employed as a lubrication engineer by the Chase Brass Co., and later as a consulting engineer in the field of metal-drawing lubricants. Mr. Smigel originated the present program of research and development of the R. H. Miller Co. in 1940 and has been General Manager of the company since 1944.

★ ★ ★

Dr. Verner, a graduate of the universities of Pittsburgh, Syracuse and Cornell, worked for 5 years as a research chemical engineer for the du-Pont Company at their experimental station in Wilmington, Del. His experience in metal finishing includes the development of a phosphating process for which he was recently granted a patent. Dr. Verner joined the R. H. Miller Co. in 1948 as Director of Research.

★ ★ ★

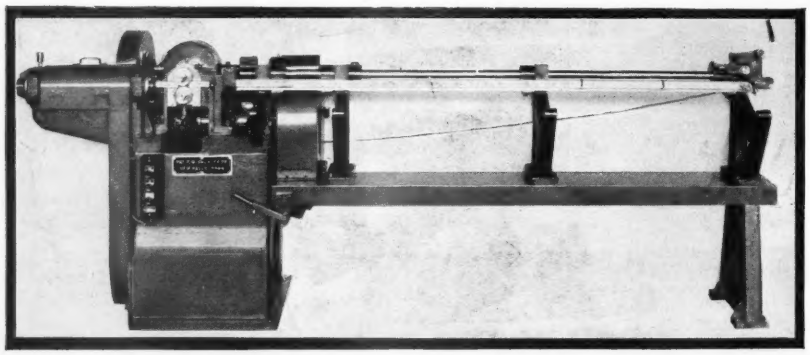
Reprints of the article are available from the R. H. Miller Co. in Homer, New York.

★ ★ ★

Continental Copper & Steel To Expand Hatfield Wire & Cable Division

At a recent meeting of the board of **Continental Copper & Steel Industries, Inc.**, it was announced that $780,000 is being expended by the Hatfield Wire & Cable Division, Hillside, N. J. **Ernest Jarvis**, president, indicated that $200,000 of this amount is being set aside for the erection of additions to the main building, comprising 40,000 sq. ft. of floor space, completely air conditioned. The balance of this amount is being spent on machinery and

TYPE 1A



CAP. 1/16 TO 3/16" DIA.

STRAIGHTENER SPECIALISTS FOR OVER 80 YEARS

Here are some of the refinements developed:

ALMOST CONTINUOUS WIRE TRAVEL—A LIGHTENING CUT-OFF THAT ASSURES SQUARE ENDS—A HIGH-SPEED, DIRECT-DRIVEN 5-DIE STRAIGHTENING FLIER—QUIET, EFFICIENT V-BELT MOTOR DRIVE—BALL & ROLLER BEARINGS THRUOUT—EXTREME RIGIDITY—TYPES FOR CAPACITIES FROM .025" to 11/16" DIAMETER

Descriptive Folder Sent on Request

Mfd. by METTLER MACHINE TOOL, INC., 132 W. Lawrence St., New Haven, Conn.

SHUSTER *Automatic* *Since 1866* WIRE STRAIGHTENING AND CUTTING MACHINES

equipment, including extruding machines and general wire production facilities. This is necessary in order to increase production of signal wire for the Signal Corps to 5,000 miles per month. In this connection, the Hatfield Wire & Cable Division has accepted a contract which will run well over the first 12 months.

★ ★ ★

The board of directors also voted approval of a new addition at the Hanover Wire Cloth Division, Hanover, Pa., where 30,000 sq. feet of floor space will be built to house new looms which are being built in order to increase the wire cloth capacity at that plant, which is at the present time running between 10,000,000 sq. feet and 12,000,000 sq. feet per month.

★ ★ ★

Fiberglas Plant Makers Tenth Anniversary

The world's first fiberglas factory —**Owens-Corning Fiberglas Corporation's** Ashton, R. I., plant celebrated its tenth anniversary on June 2nd by holding open house for the families of employees.

★ ★ ★

Approximately 2500 family visitors came to see the display showing the diversified end-uses of Fiberglas yarns—as a base material for electrical insulation, a reinforcing material for vinyl fabrics, paper and tapes, as a decorative material for curtains and draperies and a host of other applications.

★ ★ ★

John H. Thomas, Vice President and General Manager of the Fiberglas Textile Products Division, said that this anniversary marked an important milestone in the development of an industry supplying a basically new and unique raw material. This birthday, he said, finds a large share of Fiberglas products being utilized for defense needs.

★ ★ ★

During World War II, the Ashton plant won many citations for outstanding production, including five Army-Navy "E" awards. In 1941 the plant started with 15 employees. Today more than 18,000 spindles are operating 24 hours a day, seven days a week.

★ ★ ★

Bulletin on Steel Finishes

American Chemical Paint Company, Ambler, Pa., have issued a new special bulletin entitled "How to Obtain a Grade I (or Equivalent) Finish on Steel."

★ ★ ★

The bulletin cites various government specifications and describes the processes and chemicals required to meet them, using the "Granodine" zinc phosphate coating. By way of illustration, a detailed description of the process of developing the finish described in specification JAN-C-490 is given. Most ordnance items now require a special protective coating in addition to a paint finish.

★ ★ ★

Copies of the bulletin will be mailed to any of our readers who may want it.

★ ★ ★

EVERY SPRING MAKER NEEDS ME!

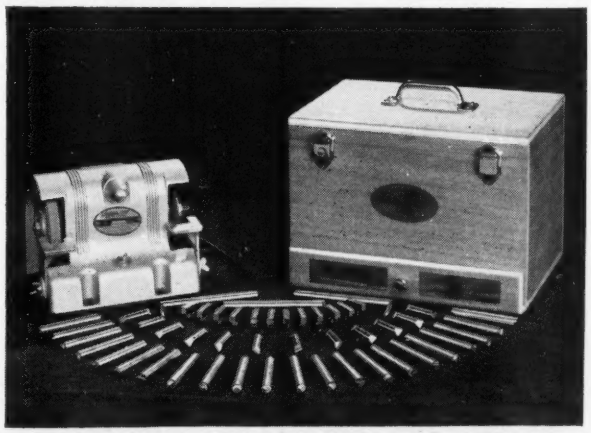
Costs Less—Saves Time and Money.

The LUNDAHL SET-UP KIT

Here's what the spring-machine operator has wanted for a long, long while. In one compact, handsome cabinet are contained all the carbide tools — arbors, coiling points, block guides, pitch tools, etc., which the operator needs for producing any regular size spring within the capacity of his machine. Special tools for making oversize springs also available.

Also in the cabinet is an efficient, high speed grinder with one 4½" diamond wheel and one 4½" silicon carbide grinding wheel of the proper grades for dressing and touching up tools.

Five different set-up kits are available for Sleeper & Hartley and Torrington Spring-Making Machines. Send for complete information. Specify machine for which kit would be used. Special assortment kits available on request.



LUNDAHL CORPORATION, 1429 PARK ST., HARTFORD 6, CONN.

One Way to Get Scrap

Thirteen old passenger and freight locomotives, retired from railroad service and purchased by **American Steel & Wire Company** for this U. S. Steel subsidiary's Worcester, Mass., plant, are being cut into urgently-needed scrap for steel production. Dismantling will take 18 weeks, and will provide 2,000 tons of scrap—a three day supply, for the plant's open hearth furnaces. It takes three men a week to dismantle one of these iron horses completely. Copper, brass and bronze is segregated from the heavy melting steel scrap and the wheels and castings are set aside for remelting in the foundries.

★ ★ ★

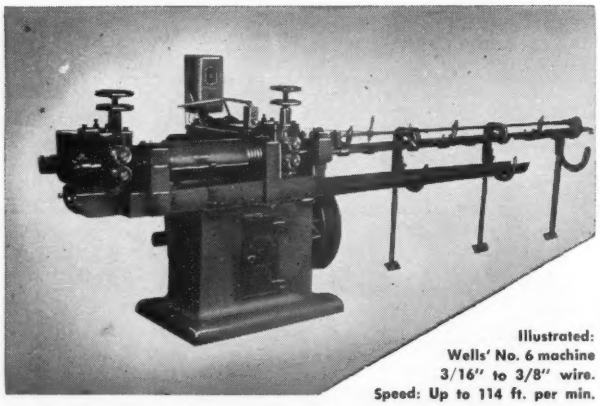
"Carbide Cutting Tools"

A new book, of the above title, by **Warren Baker,** M.S. and **Joseph S. Kozacka,** B.M.E., M.S. Published by the **American Technical Society,** Chicago, Illinois. 416 pages. 283 Illustrations. Washable Cloth Binding. Price $5.50. Distributed by the Educational Training Dept., **Vascoloy-Ramet Corporation,** Waukegan, Illinois., who have sponsored the book for educational purposes, to broaden the knowledge of carbides and their uses.

★ ★ ★

TOUGH JOBS WON'T STOP A WELLS STRAIGHTENER AND CUTTER

Here's what one user has been doing:



Illustrated: Wells' No. 6 machine 3/16" to 3/8" wire. Speed: Up to 114 ft. per min.

Cutting 3/8" hot rolled rods for 9 long years 24 hours a day.

His Wells machines are still going strong. Because of the scale, this concern says it is an exceedingly tough job - but the Wells machines take it.

The machines are cutting at 120F.P.M., with tolerances of 1/8" in this plant. Nine years of steady operation is a long test. What these machines can do for one they will do for you. Made in sizes to handle 1/16" to 5/8" stock.

Every WELLS machine is backed by 57 years of experience and all our efforts are directed toward making good machines better. WELLS machines are rugged, dependable accurate *and low in cost.*

Get the facts today. Send for Catalog No. 50 describing this and other Wells wire working machinery. Address inquiries

Frank L. Wells Company

5821 FIFTH AVENUE

KENOSHA **WISCONSIN**

Builders of Wire Making Machinery

Here, for the first time in print, is complete information about carbides and cutting problems gathered from every possible source, a book that can be understood by novice and technician alike. It covers the development of tools since the beginning of their history to the eventual conversion to the carbides. Every phase of carbide use is included in the seventeen chapters dealing with converting, tool angles, tipping, grinding, power, speeds, design, coolants, milling cutters, selection, assembly and general applications. The authors are both authorities on carbides. Mr. Baker is Managing Partner Model Engineering Co., Chicago. Professor Kozacka is the Associate Professor of Mechanical Engineering at the University of Illinois, Engineering Consultant for Vascoloy-Ramet Corporation, and Supervisor for the Illinois Institute of Technology.

★ ★ ★

Along with this book, Vascoloy-Ramet is furnishing a study guide prepared and sponsored by the American Technical Society. This guide can be used at home, by the individual and in the shop for employee training programs.

★ ★ ★

Management Techniques for Foremen by Richard W. Wetherill

An actual working reference containing the practices and operating techniques used and recommended as the best practice, by outstanding plant officials, superintendents and foremen, has been published by the **National Foremen's Institute,** New London, Connecticut.

★ ★ ★

Since publication, this book has been used in thousands of companies from coast to coast. It has reduced costs and troubles of all sorts.

★ ★ ★

The Institute's experience of thirty years of foremanship training shows that supervisors are ready and willing to learn from the practical experience of others . . . if this experience is presented to them in an interesting and useful form. Mr. Wetherill's Management Techniques For Foremen is that type of publication. The price is $6.00.

★ ★ ★

Bulletin on Chain Drives

A new bulletin entitled "Installation, Operation and Maintenance of Chain Drives and Conveyors" has been published by **Chain Belt Company** of Milwaukee. Of great interest to all who design, install, maintain or operate chain drives and conveyors, this bulletin shows how to get the most service from your sprocket chains. The text is short and to the point, and most of the illustrations show graphically the correct and incorrect ways of solving chain installation, operation and maintenance problems.

★ ★ ★

No matter how excellent a chain might be in design and construction, it will not give 100% satisfaction unless it is properly installed and operated . . . given periodical inspection, lubrication and adjustment. It is a treatise on how best to accomplish this end.

★ ★ ★

For your copy, request Bulletin No. 51-7 from Chain Belt Company, 1600 West Bruce Street, Department PR, Milwaukee 4, Wisconsin.

★ ★ ★

Article on Tungsten Carbide

In the Murex Review, Volume 1, No. 8, 1951, published by **Murex Limited,** Rainham, Essex, England, appears an article entitled "The Manufacture of Cemented Tungsten Carbide," by B. E. Berry, M.A.F.I.M., an authority on the subject.

★ ★ ★

The company has felt that while much has been written about the use of cemented tungsten carbide tools, a lucid explanation of the manufacturing processes has been long overdue.

★ ★ ★

The various constituents of the finished product are discussed in detail, the pressing, shaping and sintering of the product are described, and the factors that make for closer tolerances gone into.

★ ★ ★

A copy of the Review containing the article will be sent to any of our readers upon request.

★ ★ ★

Publication Contains Report on Electrical Contacts

A newly-available report on the use of metals in electrical contacts is reviewed in the May issue of the **Technical Reports Newsletter** recently released by the Office of Technical Services of the U. S. Department of Commerce.

★ ★ ★

Originally, the report was a comprehensive survey prepared during World War II for the War Metallurgy Committee. Through the cooperation of the International Nickel Company, it is now reprinted and contains not only the basic data but new sections covering related work by Bell Telephone Laboratory scientists.

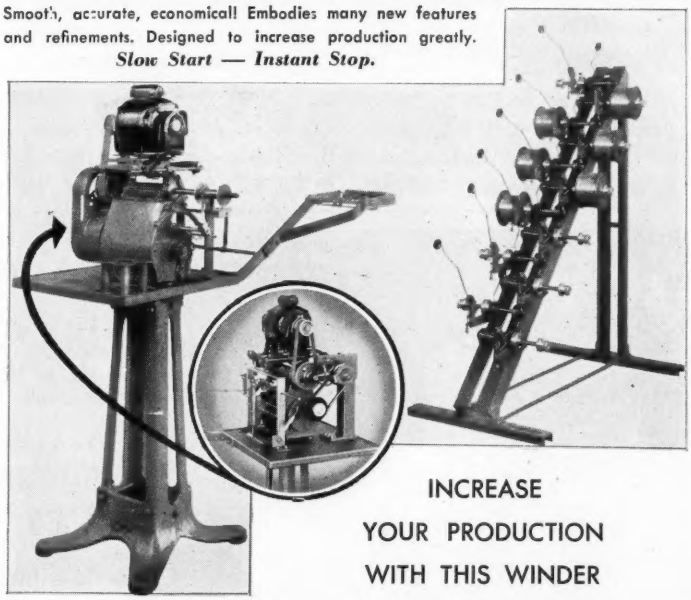
★ ★ ★

Individual copies of the May, 1951 **Technical Reports Newsletter** are available without charge from the Office of Technical Services of the U. S. Department of Commerce, Washington 25, D. C., or from the U. S. Department of Commerce field offices.

★ ★ ★

STANDARD UNI-DRIVE WIRE WINDER.

Smooth, accurate, economical! Embodies many new features and refinements. Designed to increase production greatly.
Slow Start — Instant Stop.



INCREASE
YOUR PRODUCTION
WITH THIS WINDER

PAYOFF
Our payoff attachment is made with self-aligning ball bearings and a compensating attachment to control the tension of each end. Applies same tension when spool is empty as when full.

Some outstanding features are: elimination of main drive belts; traverse adjustable to various distances between spool heads—from 1⅜" to 5½"—without changing cam; winds up to 12 ends of wire on each spool; winds ends evenly in flat ribbon in perfect alignment with spool heads; each strand of wire lays parallel to the next with no under-winding, over-winding, tight or loose spaces; starts gradually; driven by ¼ H. P. A. C. 110 volt, 60 cycle, single phase motor.

STANDARD MILL SUPPLY
PAWTUCKET, R.I., 1064-1080 Main St.
NEW YORK, N.Y., 6708 Empire State Bldg.
CHARLOTTE, N. C., 2319 Hutchison Ave.

Continuous Casting and Rolling Process Developed for Making Aluminum Rod

(*Continued from page* 582)

since they tap only enough metal to maintain an adequate amount of metal in the holding furnace. The entire metal-feeding procedure is simple and flexible, except that the ladle atop the casting machine must be kept reasonably full at all operating times.

★ ★ ★

This ladle measures 22 by 8 by 4 inches deep and holds approximately twenty pounds of metal. It is underfired from one side by a gas flame, the hot gasses sweeping the length of the ladle and exhausting under the spout which feeds the casting wheel. Heating the spout in this way prevents solidification or undue loss of temperature. In the open troughs, aluminum forms its own protective envelope against oxidation.

★ ★ ★

The continuously cast triangular aluminum bar moves into the unusual rolling mill at the speed set by the casting wheel, since there is no intervening mechanism of any kind. The mill itself is driven by a 50-hp motor. The power is transmitted to a 25-inch diameter V-belt pulley which directly turns the drive shaft that runs the length of the mill.

★ ★ ★

The top roll of each roll cluster on each stand is linked to a common drive shaft by a sprocket and chain drive which provides fixed reductions. Each stand has a simple gear reducer which controls roll speed. A simple adjustment provides for minor variations in speed.

★ ★ ★

Usually only 13 of the 15 stands are used to roll the rod size employed by Nichols. Odd-numbered passes produce a round. Even-numbered passes roll a triangular section. An air blast cleans lubricants from the rod shortly after the rod leaves its finishing pass.

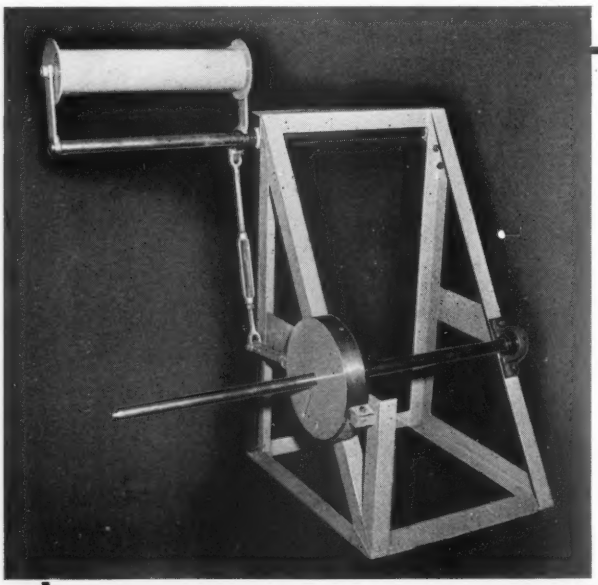
★ ★ ★

The round-triangular sequence of the Italian-designed mill is believed to have advantages over the traditional square-oval system. With three rolls, eight inches in diameter, set at 120°, only horizontal main shafts are necessary. In addition, a fine crystalline structure and a much better than average finish results. Analyses have shown the rod's tensile strength, elongation and drawing and welding characteristics to be entirely satisfactory.

★ ★ ★

The continuous casting and rolling machine is being studied widely by other companies in the metals industry because (1) it permits more flexible production of rod, gearing rod production far more closely and quickly to actual demand; (2) it utilizes materials which are easier to store and less expensive; (3) reduces manpower requirements; (4) requires less capital investment, and (5) makes possible the rapid expansion and dispersion of the country's aluminum redraw rod capacity. A single such machine can give smaller manufacturers of aluminum wire products a semi-integrated business for the first time.

★ ★ ★



It Pays Off to Use . . .
FEDERAL PAY-OFFS

The improved design and rugged construction of this Pay-Off will help you increase your production. Some features are:

AUTOMATIC TENSION BRAKE
HANDLES REELS UP TO 30"
PROVEN IN ACTUAL MILL USE

Designed for today's wide requirements out of mill experience.

Write for details and prices

Use FEDERAL —
CAPSTANS
TAKE-UPS
PAY-OFFS
WIRE TWISTERS

Federal Manufacturing Co.
SPECIAL WIRE MACHINERY
236-240 Hall Avenue, Wallingford, Conn.

Further gains are expected to be realized in later, improved models of the Properzi machine. A number of minor bugs, uncovered in the Properzi or Nichols plants, have been corrected, and the new machines are designed to utilize aluminum alloys more satisfactorily. However, considerable further development work will be done in an effort to make the continuous casting and rolling machine as nearly automatic and as nearly troublefree as any such complex device can be.

★ ★ ★

In brief, the present is good and the future still brighter for this foreign-born, but well Americanized, innovation. To many, the continuous casting and rolling machine at Nichols is but the forerunner of a new industrial age in which continuous processes will reach full maturity in many metals and move from countless experimental shops into countless production lines.

★ ★ ★

Wire and Cable IAC

The Wire and Cable Industry Advisory Committee of the Office of Price Stabilization, when holding its second meeting in June, was informed by OPS officials that the agency is weighing the possibility of removing wire and cable from its machinery price regulation (CPR 30) and placing them under a specifically designed order, leaving them in the interval under the general freeze.

★ ★ ★

Industry representatives have advised these steps because of their low profit status in the pre-Korean base period stipulated by CPR 30, together with their extraordinarily complicated price structure and the difficulty of scheduling preparation of a tailored regulation. Price wars and the squeezing of some producers who voluntarily refrained from advances, plus higher Chilean copper prices, have left the industry's quotations in a confused situation.

★ ★ ★

Recommendations were made for a ceiling regulation based on price lists filed with OPS. The argument was put forward that the industry is essentially a mill industry and does not belong under the machinery order at all.

★ ★ ★

Ceiling prices at levels not above those maintained by the highest priced segment of the industry under the General Ceiling Price Regulation were discussed.

★ ★ ★

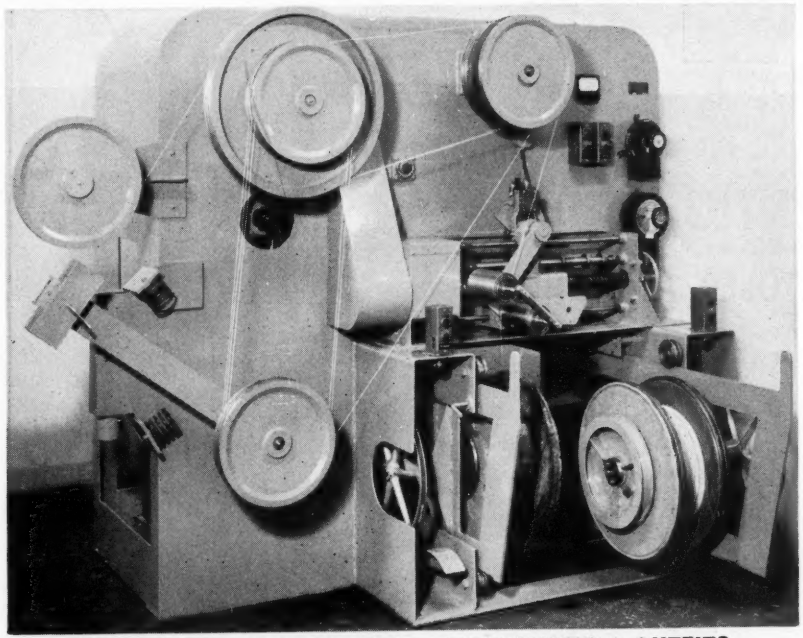
Reynolds Wire Announces Promotions

W. E. Haarbauer has been appointed Factory Manager of the **Reynolds Wire Division, National-Standard Company,** Dixon, Illinois, and **W. O. Anthony** has been appointed Assistant Factory Manager and Chief Engineer.

★ ★ ★

Mr. Haarbauer was formerly general Superintendent and Mr. Anthony the company's Plant Engineer.

★ ★ ★



WIRE ANNEALING, TINNING and GALVANIZING OUTFITS
MULTIPLE or SINGLE UNIT WIRE TAKE-UPS
FINE WIRE DRAWING MACHINES
MAGNET WIRE ENAMELING EQUIPMENT, INCLUDING PRE-ANNEALERS, SYNTHETIC ENAMEL APPLICATORS and CIRCULATING SYSTEMS
COTTON, GLASS-FIBER and TAPE COVERING MACHINES

CAPSTAN AND DOUBLE TAKE-UP FOR CONTINUOUS OPERATION

WIRE TAKE-UP TENSION, ONCE SET, IS CONSTANT THROUGHOUT REEL BUILD-UP.

REELS INDIVIDUALLY MOTOR DRIVEN.

MACHINE BALL BEARING MOUNTED THROUGHOUT.

EST. 1855 AIMco INC. 1915

"American" INSULATING MACHINERY COMPANY

REG. U.S. PAT. OFF.

517 West Huntingdon St.
Zone 33

PHILADELPHIA PENNSYLVANIA U.S.A.

New Wrapping Machine Announced

A new inexpensive combination machine for wrapping a wide range of coils as well as straight lengths has been developed and is being marketed by **Terkelsen Machine Company** of Boston.

★ ★ ★

This machine is known as their model #4-X.

★ ★ ★

The machine will wrap a circular diameter of 10″ in either coils or straight lengths. It will wrap a minimum inside diameter of 12″. It will wrap any outside diameter coil.

★ ★ ★

The economy and neatness of machine wrapping has been definitely established. This is proven by the hundreds of Terkelsen Machines now in operation in the steel and wire field. The addition of this machine to our line makes it possible for us to effect further economy.

★ ★ ★

And the machine is very easy to operate. It is quick to start. It is quiet. It has no hand levers. It has an automatic brake to stop. It is controlled by foot pedal. It has no clutch. No unhandy or complicated mechanism whatsover.

★ ★ ★

Two machines are now in operation in the field and several more are now being constructed. The machine fills a much needed spot in many plants.

★ ★ ★

General Cable Man Wins Marston Medal Award

Ralph W. Atkinson, Chief Research Engineer, **General Cable Corporation,** Bayonne, N. J., was named the thirteenth winner of the **Marston Medal** for achievement in engineering at the 80th annual commencement at Iowa State College June 15th.

★ ★ ★

The Marston Medal is awarded to an engineering alumni of Iowa State College in recognition of achievement in engineering. The Award was established through the generosity of the late Anson Marston, who was Professor of Civil Engineering from 1892 to 1920, Dean of the Division of Engineering from 1904 to 1932 and Dean Emeritus at the time the Award was established.

★ ★ ★

Upon his graduation, Mr. Atkinson entered the apprenticeship course of the Westinghouse Co., East Pittsburgh. In the spring of 1908 he joined Standard Underground Cable Co., Pittsburgh under the supervision of Henry W. Fisher, Chief Engineer, who had been one of the leaders in introducing engineering methods into the then infant wire and cable industry. Atkinson has remained with the Company and its successor, the General Cable Corporation, first at Pittsburgh, then at Perth Amboy, N. J., and now at Bayonne. He followed Mr. Fisher as Chief Electrical Engineer of the original company and was thereafter Director of High Voltage Research and now Chief Research Engineer of the successor company.

★ ★ ★

Now Is The Time to Make Your Plans

to attend the

ANNUAL CONVENTION of the WIRE ASSOCIATION

CHICAGO, ILL., OCTOBER 22-25, 1951, at the LA SALLE HOTEL

A fine series of both Ferrous and Non-Ferrous technical papers are being gathered by John A. Moritz, Superintendent, Wire Mills, Keystone Steel and Wire Company, Chairman of the Ferrous Program Committee, Dr. Bruce W. Gonser, Battelle Memorial Institute, Chairman of the Non-Ferrous Program Committee, under the direction and with the cooperation of Ralph B. Roth, Vice President, Ludlow Saylor Wire Company, General Program Committee Chairman.

Full program details will be printed next month. A valuable and timely program, including a plant visit to the Joliet Plant of the American Steel and Wire Company.

THE WIRE ASSOCIATION

300 MAIN STREET — RICHARD E. BROWN, Executive Secretary — **STAMFORD, CONN.**

New Solvent Makes Water Rustproof

A liquid chemical, IMMUNOL has been developed which when added to water, hot or cold, immunizes it against rusting ferrous metals. In addition it imparts unusual detergent properties and complete "wetting out" action. IMMUNOL solutions are odorless and neutral, contain no soaps or alkalies, are non-inflammable and will not affect the skin. Replaces alkali cleaners and inflammable solvents.

★ ★ ★

Wire treated with IMMUNOL will prevent looping in spooling the wire. Also used in wire weaving to prevent rusting of the wire cloth while in storage awaiting further processing.

★ ★ ★

Described in a brochure entitled **"Immunol"** by the **Haas Miller Corp.**, 4th and Bristol Sts., Philadelphia 40, Penna.

★ ★ ★

A.S.&W. Appoints Defense Engineer

Orville L. Longbrake has been appointed defense regulation engineer for the **American Steel & Wire Company,** it was recently announced by **Walter F. Munford,** vice president in charge of operations.

★ ★ ★

In his new post in the General Engineering Department, Mr. Longbrake will analyze and interpret government orders and regulations affecting engineering and maintenance operations in the Wire Company's 14 plants located in nine cities. In addition, he will assist with procurement and correlate information concerned with engineering and maintenance.

★ ★ ★

New Government Publications

Volume 14 of the **Bibliography of Technical Reports** (July-December, 1950) is now indexed according to subject, the Office of Technical Services of the **U. S. Department of Commerce** announced recently.

★ ★ ★

The new index is the eleventh to be issued by OTS, Volumes 7, 8 and 9 still remain to be indexed.

★ ★ ★

Copies of the **Subject Index to Volume 14** may be purchased from the Office of Technical Services of the U. S. Department of Commerce, Washington 25, D. C., at $1 per copy. Also available from O. T. S. at $1 each are the indexes to Volumes 6, 10, 11, 12 and 13. The indexes to Volumes 2 and 3 are available in limited quantity at 35¢ each. Check or money order payable to the Treasurer of the United States should accompany all orders.

★ ★ ★

The Bibliography of Technical Reports, issued monthly, lists additions to the 150,000-document OTS collection of foreign and domestic reports. Together with the "Technical Reports Newsletter" it helps provide U. S. business firms with the highlights of federal and non-confidential technical research.

★ ★ ★

MEYER, ROTH + PASTOR
MASCHINENFABRIK
KÖLN-RADERBERG
R+P
SINCE 1870
PRODUCTION PROGRAM FOR 1951
Machines for chain making:
Chain bending and welding machines for wire diameters of 2—26 mm. Bending and welding machines for crane and extra heavy chains with a wire diameter up to 36 mm.
Chains twisting machines. Machines for manufacturing knotted chains. Chain calibrating, testing and stamping machines.
Machines for making chain fittings.
Welding machines for single chain links, rings, buckets etc.
Wire and sheet metal working machines for the production of:
Wire nails, wire brads and cut tacks, roofing nails, bicycle spokes, lock washers, bottle caps, threaded studs, sleeves and bushings for bicycles, motorcycle and drive chains, core frames, can opener keys, rivets and bolts, rail spikes, shoe nails, heel plates, cotter pins, forked rivets, and many other wire and sheet metal articles.
Wire straightening and cutting tools.
Grinding machines for wire nail cutters.
Messrs. MEYER ROTH and PASTOR
MACHINENFABRIK
KÖLN—RADERBERG, GERMANY
Agents are wanted to represent us in the U.S.A. on a commission basis or for own account. Please write.

Establishes Annual Award for Distinguished Service

John A. Carter, President of **Oakite Products, Inc.**, manufacturers of industrial cleaning and related materials, has announced the establishment by the Company of the **David C. Ball Award for Distinguished Service**, a bronze plaque to be presented annually to the member of the Oakite technical field organization who has rendered the most outstanding service to industry during the year.

* * *

The award is designed to perpetuate the memory of David Clifton Ball, pioneer in industrial cleaning procedures, founder of the Company and Chairman of its Board of Directors at the time of his death in March of this year. From the earliest beginnings of the Oakite organization in 1909, Mr. Ball insisted upon maintaining the principles of service which today characterize the work of the Company's field service organization throughout industry.

* * *

New Plastic Coated Crab Trap

A new crab trap is made of wire mesh coated with brightly colored Vinylite resins that resists corrosion by salt or fresh water. The thick, tough Vinylite resin coating makes the trap clearly visible underwater, adds weight to the trap to make it sink quickly, bonds the wire joints, and adds strength and life to the wire mesh.

* * *

New Tank Cement Announced

The Atlas Mineral Products Company, Mertztown, Penna., announces VITROPLAST, a newly developed light colored synthetic resin cement which is resistant to many acids, solvents, greases and oxidizing agents such as sodium hypochlorite and chlorine dioxide. Unlike other resin cements, VITROPLAST sets hard in contact with concrete and metals and exhibits excellent adhesion properties for the jointing of brick and tile and adhering glass, concrete, metal and other materials. Bulletin 5-30E gives complete details on this new product.

* * *

J. O. Ross Engineering and Ross Industries Corporation Merged

Ross Industries Corporation, Highland Park, N. J. announces that it has been merged with its wholly owned subsidiary, **J. O. Ross Engineering Corporation.** Both businesses will henceforth operate under the name of J. O. Ross Engineering Corporation with main offices at 444 Madison Avenue, New York. There will be no changes in personnel, plants or operation of either organization involved in the transaction.

* * *

Still Priming the Pump

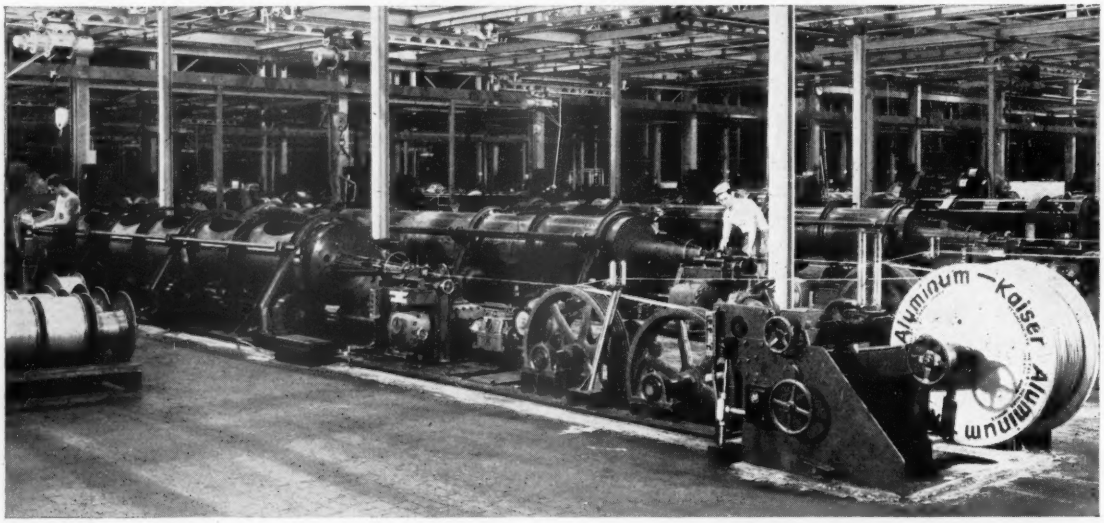
American Industry will be paid some 73 billions this fiscal year, as against 43 billions last year. Most of this is for military supplies. What about the business-as-usual outlays of our bureaus? They go right on. Even added 400,000 employees since last July.

Our First Wire Nail Machine

100 YEARS AGO IN 1851, under the supervision of Major Thomas Morton, the first American machine for making wire nails from iron and brass was built in New York City.

NEW 22" SPOOL 750 RPM TUBULAR STRANDER

HYDRAULIC LIFT REEL STAND — INFINITELY VARIABLE TRAVERSE AIR CONTROLLED
ROUBLE DRUM HAUL-OFF WITH LINK BELT P.I.V. — AIR OPERATED BAKING SYSTEM



HMT — Hughesville Machine & Tool Company — Established 1846 — Wire & Process Machinery

Hi-Efficiency

HUGHESVILLE MACHINE & TOOL CO.
54 ACADEMY STREET
HUGHESVILLE, PA.
'Phone: 129-A

To Manufacture Reels

Henry M. Carris has organized the firm of **Carris Reels, Inc.**, at 156 No. Main Street, Rutland, Vermont, to manufacture returnable and non-returnable reels and spools. One of the company's reels is of new design, patent for which has been applied for. It is constructed entirely of plywood, eliminating all metal parts. This reel is adapted to use with insulated wire. It is light in weight and is said to have excellent winding characteristics. The elimination of metal, Mr. Carris points out, makes it possible to secure the reels without a D.O. number. The company also makes wooden process reels and spools.

New Fiberglas Appointments

David W. Anderson, formerly assistant service manager and also engaged in planning textile production facilities, has been advanced to the position of service manager of the Fiberglas Textile Products Division, with headquarters in New York City.

★ ★ ★

He succeeds **Owen C. Divan,** who has been transferred to the new Fiberglas yarn plant at Anderson, N.C., where he will be service manager. Mr. Divan was one of a group of officials who underwent special training at the Newark, Ohio, plant until the new plant opened in July.

★ ★ ★

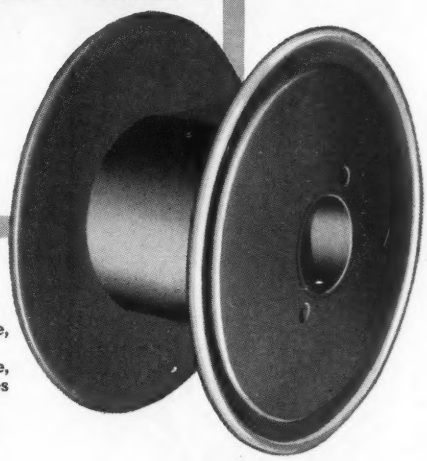
These announcements were made by **John H. Thomas,** Vice President of the **Owens-Corning Fiberglas Corporation.**

Bulletin on Equipment for Inspection

Arthur S. LaPine & Co., 121 West Hubbard St., Chicago 10, Ill., has issued a bulletin describing a wide variety of optical and illuminating equipment for inspection jobs from simple naked-eye illuminated inspection to highpower, close-tolerance microscopic examinations. Equipment covers blacklight and fluorescent lighting and around-the-corner inspections of inaccessible points for inspection of small parts, tolerance checking, inspection of polished metallurgical samples, inclusions and many other types of work. A copy of the bulletin, "Better Equipment for Inspection" will be sent to any of our readers upon request.

What's your problem with...

SPOOLS
REELS
BOBBINS?



Get in touch with Apco Mossberg. We are familiar with the production problems involving steel spools, reels and bobbins, utilized in the copper wire, steel wire and wire rope industries. Profit from our half-century of experience, engineering know-how and plant facilities —making possible the manufacture of almost any conceivable kind, type, size and quantity of steel spools, reels and bobbins. Contact us for free engineering service. Without obligation we will be glad to offer suggestions and solutions to your particular problems.

Write TODAY for a copy of our booklet that illustrates:

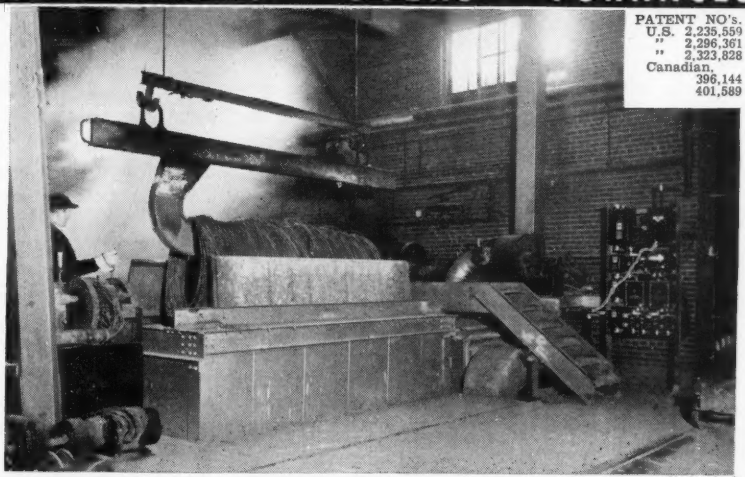
- *Flat Head Spools*
- *Curled Flange Spools*
- *Stranding Reels*
- *Take off Reels*
- *High Speed Wire Drawing Reels*
- *Vulcanizing and Insulating Reels*
- *Pressed Steel Bobbins for Wire Weaving*

APCO MOSSBERG CO.
(The original Frank Mossberg Co.)
Attleboro, Mass., U.S.A.

Pacific Coast Representative
Gordon Proffitt
Matson Building
215 Market Street
San Francisco, California

Canadian Representative
Hugh P. Williams & Co.
47 Colborne Street, West
Toronto, Ontario, Canada

MORE PRODUCTION *with* CARL-MAYER HI-SPEED
ROD BAKERS - OVENS - FURNACES



PATENT NO's.
U.S. 2,235,559
" 2,296,361
" 2,323,828
Canadian,
396,144
401,589

Patented

TYPICAL HI-SPEED ROD BAKER — DIRECT OR INDIRECT HEAT — ANY FUEL
WRITE for BULLETIN No. 350

Growing interest in our type of equipment is evidenced by Carl-Mayer installations for such plants as:—

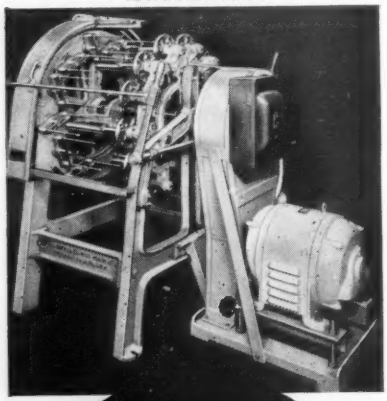
American Steel & Wire Co.
Atlantic Wire Co.
Atlas Steel Co.
Atlas Tack Corp.
B. Greening Wire Co.
California Wire Cloth Corp.
Crucible Steel Co. of America
Eaton Mfg. Co.
Frost Steel & Wire Co. Ltd.
Gary Screw & Bolt
Holup Corp.
Indiana Steel & Wire Co.
Johnson & Nephew Ltd.
Jones & Laughlin Steel Corp.
Page Steel & Wire Co.
Pittsburgh Tool Steel Wire Co.
Republic Steel Corp.
Steel Co. of Canada
Wickwire Spencer Steel Div.

THE CARL-MAYER CORPORATION
3030 EUCLID AVENUE
CLEVELAND, OHIO

UNLESS YOU KEEP PACE WITH TECHNOLOGICAL ADVANCES

Increased output and lower unit costs . . . your first step to meeting competition . . . are made possible by the installation of new, improved Haskell-Dawes equipment. If you make rope, cord, twine, thread or wire be sure you get our new bulletins. These together with an analysis of new production techniques may well be the way to more sales—more profits. Be sure you write us — TODAY.

12-SPINDLE TWISTER



HASKELL -DAWES
MACHINE CO., INC.
2231 E. ONTARIO ST.,
PHILADELPHIA 34, PA.
• TWISTERS • ROPERS • LAYERS
• BUNCHERS • STRANDERS

Copper Plating of Pins Prolong Chain Life

Four advantages are claimed by **Baldwin-Duckworth Division of Chain Belt Company** as a result of their present method of copper-plating roller chain pins.

★ ★ ★

1. **Copper** on the pin ends permits case hardening of the bearing surface of the pin to the optimum degree yet retaining soft ends. The surface acquired assures long pin life.

2. **Since** copper won't absorb carbon during heat treatment, pin ends remain relatively soft, permitting more secure riveting. Soft ends permit "upsetting" of pins end in side plate, assuring a tight fit that eliminates the possibility of pins rotating in plate.

3. **Properly** riveted pins have greater holding power than cottered pins. Soft pin ends assure highest quality riveting. No "weak links" in the chain caused by poor riveting.

★ ★ ★

4. **The** comparatively soft pin heads can be easily ground off prior to driving out the pins or pin links. Thus, if disassembly is necessary, it is quick and easy.

★ ★ ★

After cutting, machining, rough grinding and tapering of the pin ends, the pins are entirely copper plated in a copper solution bath. Next, copper is ground off the shank of the pin, leaving only the two extreme outer parts of the pin body and the pin ends still plated.

★ ★ ★

Since copper does not absorb carbon, in the case hardening operation, only the body of the pin (the bearing area or working surface in the assembled chain) absorbs carbon. The body of the pin is then given a finishing grind and the pins are ready for assembly. The copper pin end is riveted to the side plate and the softened end makes for a firmer, stronger rivet.

★ ★ ★

For additional details, write Baldwin-Duckworth Division of Chain Belt Company, Dept. PR, Springfield 2, Massachusetts.

Nothing Mysterious . . .

There's nothing mysterious about the way Mason can make a top-quality, non-returnable spool and sell it for less! It's simply a matter of modern production facilities.

Mason has integrated its entire manufacturing processes to such an extent that real savings are made possible—and these savings are passed on to you!

Mason Spools are available in standard head and barrel sizes. Write for a quotation today!

MASON CAN COMPANY
1949 Dexter Rd., East Providence 14, R. I.
MASON CAN COMPANY OF OHIO
Greenville, Ohio

PHILIPS
Master-Made
DIAMOND DIES

Product of MODERN SCIENCE and MASTER CRAFTSMANSHIP

● The tools of modern science are combined with the skills of the master craftsman in the production of PHILIPS *master-made* Diamond Dies.

Every diamond selected for cutting is examined by PHILIPS X-ray diffraction apparatus to determine the proper direction for drilling to provide longer life and greater satisfaction to the user. Master craftsmen of long experience, working under the most modern conditions, drill each diamond to precision tolerances. Result? The finest diamond dies obtainable—now available to American industry under the trade name of NORELCO Diamond Dies.

All sizes . . . from .000275 to .100 are available at competitive prices. Let us consult with you concerning your requirements.

Norelco

NORTH AMERICAN PHILIPS COMPANY, INC.

Dept. FE-7, 100 East 42nd St., New York 17, N. Y.

First Silicon-Free, Flux-Coated Aluminum Welding Alloys Introduced by Eutectic . . .

What are reported to be the first high quality, flux-coated aluminum welding rods for oxy-acetylene and oxy-hydrogen welding have been released by Eutectic Welding Alloys Corporation, 172nd Street and Northern Boulevard, Flushing New York.

★ ★ ★

For architectural structures and many other applications where an anodized silicon bearing welding rod has always shown an objectionable dark weld, Eutectic's new EutecRod 22FC is said to provide a base metal matching solution since corrosion resistance and color, as well as physical properties of the weld, are said to closely match the aluminum. The flux coating is "low melting" to provide for minimum heat application and once melted, flows in a transparent pool, permitting the welder to easily watch the progress of the work while eliminating the "stoppages" that occur when a rod with separate flux is used.

★ ★ ★

New EutecRod 22FC is manufactured in ⅛" and 3/16" diameters. Full details and specifications are available on request from Dept. TIS, **Eutectic Welding Alloys Corporation,** 172nd Street & Northern Boulevard, Flushing-New York.

★ ★ ★

Keystone Executive Retire

Retirement of three executives of the **Keystone Steel & Wire Company** was announced in June by **Reuben E. Sommer,** president and general manager. Under terms of the Keystone Pension Plan, **William O. Fritze,** vice-president and treasurer; **William C. Erkert,** director of purchases; and **Walter H. Gardner,** general sales manager, retire June 30 from active participation in Company affairs.

☆ ★ ★

In announcing the changes, Mr. Sommer stated that Keystone would be suffering a great loss of experienced leadership in the retirement of Bill Fritze, Will Exkert and Walter Gardner in view of all that their services have contributed to the success of the Company.

SAVE TIN!

with

STANNOUS SULFATE

Use of Stannous Sulfate for liquor finishing baths saves tin, assures more efficient processing.

for ALL LIQUOR FINISHING of STEEL WIRE

white or straw color

M & T Stannous Sulfate provides these advantages:

- **Reduces tin losses by eliminating the high tin sludging common to the acidulated feather tin process.**
- **Makes it easier to control results because only two variables (the Stannous Sulfate and Copper Sulfate concentrations), require watching.**
- **Produces smooth, uniform, wire coatings from day to day and from lot to lot.**

Write for engineering data on the use of Stannous Sulfate in liquor finishing operations.

METAL & THERMIT CORPORATION

Specialists in Tin and Tin Chemicals

100 East 42nd Street • New York 17, N. Y.

YOUR LACQUER PROBLEMS
GET SPECIALIZED ATTENTION
AT NEW ENGLAND LACQUER CO.
SPECIALISTS IN PRODUCING LACQUER FOR THE Wire Industry

Manufacturers of

PRIMARY WIRE!

NEW, IMPROVED LACQUER IS NOW AVAILABLE

1. RESISTS EXTREME HEAT! New England Lacquer for primary wire has resisted 300° F. heat for 8 hours!
2. WITHSTANDS ULTRA-VIOLET EXPOSURE!
3. RETAINS FLEXIBILITY AND GLOSS EVEN AFTER HIGH HEAT!
4. MEETS S.A.E. LOW-TENSION SPECIFICATIONS!

Write today for further information about this outstanding lacquer development.

NEW ENGLAND LACQUER CO.

KING PHILIP ROAD
EAST PROVIDENCE, R. I.

Safe Derusting and Interim Rust Prevention

The use of Magnus D-Scale-RW for removal of rust without danger of attack on the base metal is particularly well typified in a report just received by the **Magnus Chemical Company** of Garwood, N. J., on the use of this product on the cleaning of spools used for copper wire.

* * *

The company in question uses from 800 to 4000 6″ and 7″ copper plated steel spools per day, depending on the type of wire to be shipped. The spools soon lose the copper plate and rust in varying degree, depending on the care exercised by the wire customers before returning them to the supplier.

* * *

Formerly degreased spools were hand brushed on a powered wire brush. It was a slow and expensive method.

* * *

Now the degreased spools are dipped in a hot solution of Magnus D-Sale-RW (190° F.), and held there for 7 to 10 minutes on the average, (some spools require as little as 3 minutes). Spools are loaded in baskets—about 100 per load. They are given a cold running water rinse and then dipped into solution of Magnus 63. This alkaline cleaner neutralizes any traces of D-Scale-RW which might remain on the spools. D-Scale-RW is an inhibited acid cleaner, perfectly safe on metals for moderate periods of contact, but the alkaline cleaner is used as a security treatment. At the same time Magnus 63 leaves a soap film on the spools which prevents their rusting during the interim between cleaning and re-use.

* * *

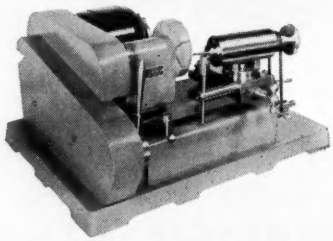
The method is so simple and effective that spools are now derusted every time they are returned to the plant. With the wire brush method they got a cleaning only every third time.

ROOS DYKREX

MACHINE CORRECTS AND REJUVENATES YOUR

DIES

to original condition



IT'S MORE than a POLISHER

IT'S MORE than a LAPPER or RIPPER

It corrects the die by straightening out any eccentric entrance angles on the dies.

ROOS TOOL & Mfg. Co.

33-35 BLOOMFIELD AVENUE
NEWARK 4, N. J.

Distributed by

Eastern Carbide Corp., New Rochelle, N. Y.

Carboloy Co. — Detroit — Pittsburgh — Newark — and all Principal Cities.

In Canada — Canadian General Electric Co., Toronto, Canada.

The basic principle involved in this method of derusting and interim rust protection apply to practically any steel part or product where rust poses a problem. Note that where the volume of metal is sufficient, as in the case of the spools discussed above, work from the dip in Magnus 63 solution is self drying. On some small items, it might be necessary to dry the work.

★ ★ ★

Bulletin on Catalytic Fume Combustion

Bulletin B, issued by Catalytic Combustion Corporation, 4544 Grand River Avenue, Detroit 8, Mich., describes the principles of operation and application of their process. This process is coming into extensive use in the wire enameling field as a means of eliminating irritating odors from the vicinity of the plant and also as a means of recuperating for further use the heat generated in the combustion of the fumes.

Bulletin "B" should interest a large number of our readers, who will be sent a copy upon request.

Steel Shell Cases are Back

The Army will shortly begin manufacturing steel cartridge cases for small arms and artillery ammunition. In the event of large scale production of cartridge cases, it is estimated that millions of pounds of strategic metals, formerly used in brass casings, will be saved.

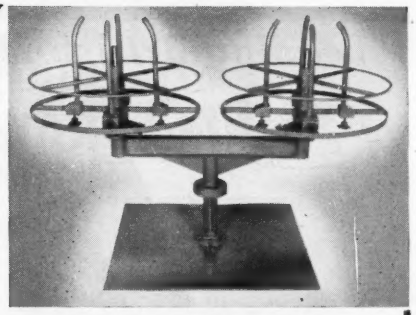
★ ★ ★

Steel cases were tried during the last war, but proved unsatisfactory because of splits when fired. The Ordnance Corps has, however, developed a new steel casing material which exceeds brass alloys in performance. Its basic reason for research in the field of steel casings was that many of the new weapons and ammunition under development require physical properties in the cases beyond the range of brass alloys, but within the range of steel.

Norsholm "Reel Master"

For Easy Loading and Economy

Built in Three Types:



1) HEAVY DUTY DOUBLE REEL, 2) TILT TYPE, 3) SINGLE REEL.

Engineered by men experienced in all phases of wire working, NORSHOLM REELS embody advanced design features that assure increased production. Are rugged and precision made, built for endurance and high efficiency. Models vary from small single reels for light wires to large reels for 500 lb. coils of wire. All are ball-bearing equipped.

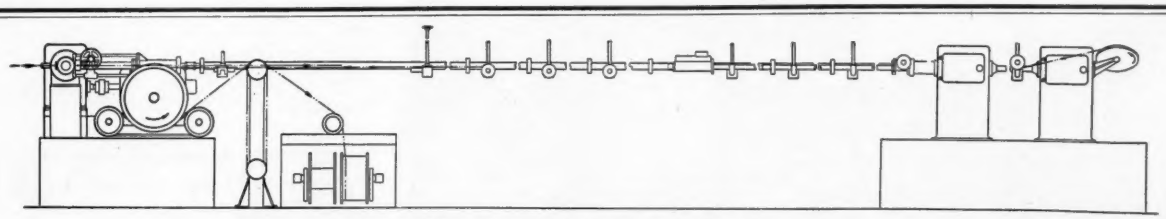
With the HEAVY DUTY DOUBLE REEL, shown above, greater yield from wire equipment is possible. As the wire is pulled from one reel, the other is loaded, eliminating down-time. Foot pedal allows reel to index 180° to make ready for new coil.

Also makers of STRAIGHTENING AND CUTTING, WIRE FORMING, and PIN CUT-OFF machines. All fast, dependable, efficient.

Send for descriptive bulletins.

NORSHOLM INDUSTRIES

307 WEST AVON RD. ROCHESTER, MICH.



DAVIS-STANDARD CONTINUOUS VULCANIZING EQUIPMENT

COMPLETE CONTINUOUS-VULCANIZING UNITS

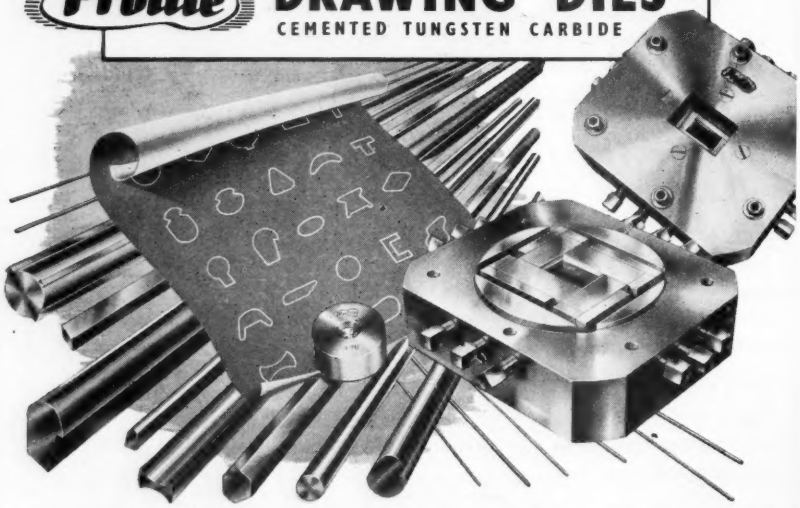
THE STANDARD MACHINERY COMPANY, MYSTIC, CONN., U. S. A.

Established in 1848 *Incorporated in 1875*

Export Office: Drexel Bldg., Philadelphia 6.
Canada: Williams & Wilson, Ltd, Montreal, Toronto.
Chicago: Grant Engineering Co.
Pacific Coast: W. H. Del Mar Co. 5140 Crenshaw Blvd., Los Angeles

Leading British Manufacturers use

Prolite DRAWING DIES
CEMENTED TUNGSTEN CARBIDE

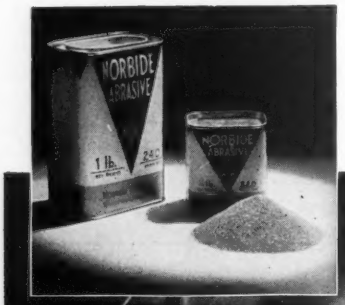


THE 'PROLITE' RANGE OF MUREX METALLURGICAL PRODUCTS *includes:*

Tungsten Carbide Tips and Tipped Tools, Bar, Tube and Wire Drawing, Extruding and Metal Forming Dies and Die Pellets, Cold Heading Dies, Nozzles, Guides, Bushes and other Wear Resisting Parts.

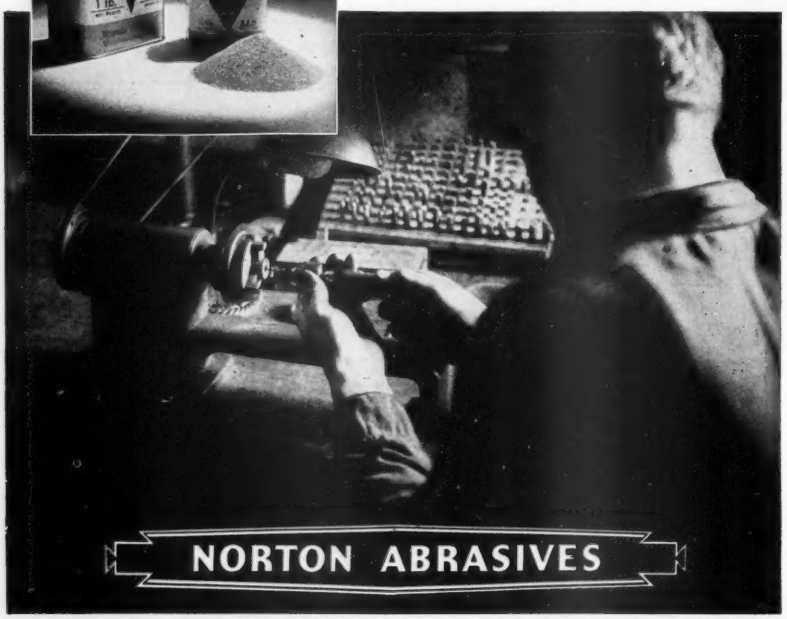
MUREX LTD. *(Powder Metallurgy Division)* RAINHAM • ESSEX • ENGLAND
London Sales Office: Central House, Upper Woburn Place, London, W. C. 1.

NORBIDE Abrasive: Effective, Economical



This abrasive—second only to the diamond in hardness and 150 times less expensive—does an efficient job of cutting and semi-finishing cemented carbide wire drawing dies.

NORTON CO. — Worcester 6, Mass.



Apex Alkali Products Company Announces New Appointment For New York State and Provinces of Quebec and Ontario

Robert F. Morton has been appointed to the staff of technical sales for Apex of Philadelphia.

★ ★ ★

He is a graduate of Amherst College, is married and has two children, a boy and a girl.

★ ★ ★

His war record reflects interesting experiences. As a lieutenant, j. g., he commanded a PT boat in the Philippines and the Mediterranean.

★ ★ ★

Apex Alkali New Associate Robert F. Morton.

Prior to his association with Apex, Mr. Morton had been with the Bulk Division of Procter & Gamble. Last year he led his group in sales in excess of quota, which covered the territory comprising the eastern seaboard—from Pennsylvania to South Carolina.

★ ★ ★

Since Mr. Morton is only twenty-eight years of age, this speaks much for his future efforts and association.

★ ★ ★

N.P.A. Calls for More Scrap

The flow of iron and steel scrap to mills and foundries is not keeping pace with consumption. As a consequence, inventories are falling below safe working levels.

★ ★ ★

Additional supplies of scrap must be received if production schedules

of iron and steel for the defense program and our civilian allowances are to be met.

★ ★ ★

It is estimated that the steel mills, in order to meet the 1951 production needs, will require 3,000,000 MORE gross tons of purchased scrap than in 1950. The 1951 estimate is 32,500,000 gross tons — the production schedule for 1952 will call for EVEN MORE. That scrap MUST be found.

★ ★ ★

Normal scrap sources cannot produce this increase. It must come from what is known as dormant scrap such as obsolete machinery, tools, jigs, dies, fixtures and other equipment including items that are broken, worn beyond repair, abandoned, or in need of parts no longer available.

★ ★ ★

It is recommended by the N.P.A. that every manufacturers help by: (a) searching out all dormant scrap, (b) consideration of wrecking or dismantling projects that will produce scrap and (3) getting all production and dormant scrap into the normal channels as early as possible.

★ ★ ★

New Spring Coiling Machine

The Cycloid Corp., Saugus, Mass., has developed a device called the "Spring-Master" that can be attached to any ½" drill press for the forming of springs.

★ ★ ★

It can be used for spring production and development work or is useful in maintenance and repair shops, forming springs of variable diameters and pitch.

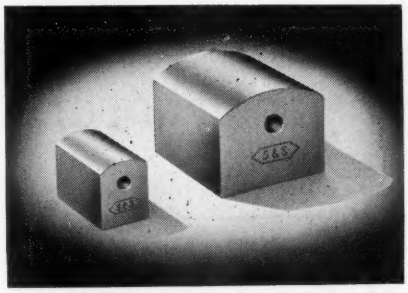
★ ★ ★

Capacities include wire from 8 ga. to 28 ga., with outside diameters of the coils from 3/16" to 5/8". Special dimensions may be made by ordering special spindles. Pitch and compression springs may be made with infinite variations to suit needs while the machine is running. Speeds of production are at 685 feet per hour.

★ ★ ★

The cost of the attachment is $65.-00 complete with standard spindles. Full details may be secured by writing the manufacturers.

Sjogren SWAGING HAMMERS



SJOGREN Swaging Hammers represent another proven product in the S & S line! Shock resisting, highgrade steel is used to assure you of continuous production. Standard sizes of S & S hammers are available from stock; special sizes are made to order on your specifications. A rugged S & S Swaging Hammer is your guarantee of service.

Used by Wire Men Who Want the Best!

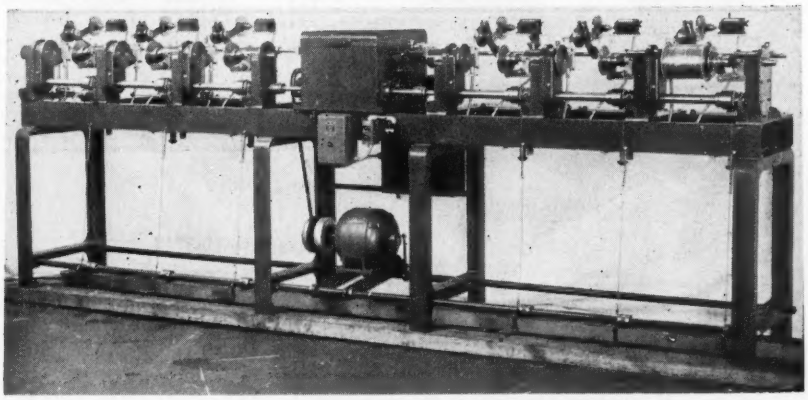
SJOGREN TOOL AND MACHINE CO., INC.

WIRE PULLERS • WEDGE GRIPS • JAWS FOR ALL MAKES OF PULLERS AND TESTING MACHINES • CAGE ROLLERS • SWAGING HAMMERS • POINTING DIES • WIRE SPOOLERS

14 SWORD STREET
AUBURN
MASSACHUSETTS

Represented in Canada by THE LARSON CO., 98 Wellington St., West, Toronto, Ont.

MACHINERY FOR WIRE
WINDING • SPOOLING • COILING



Illustrated: Six-Spindle Multihead Winding Machine

The Winder shown above has a main control box with a single screw reversed by a solenoid control for traverse of wire guides. Each head individually controlled by a pre-determined measuring device.

Send for information on this winder and our complete line of BOYD-FIDELITY SPOOLERS

BOYD & SONS MANUFACTURING CORPORATION
1434-38 Callowhill St., Philadelphia 30, Pa.

AMCARB

TUNGSTEN CARBIDE PRODUCTS

Diemakers for Industry

AMERICAN CARBIDE DIE CO.

UNION CITY, N. J.

fine wire made finer

custom drawn
custom insulated
custom spooled . . .
to your most exacting requirements

◎ Specify the electrical properties, flexibility, tensile strength, laying speed, uniformity and other characteristics you must have. Our Hudson and Winsted Divisions will meet and maintain your specifications.

Yes, "Fine Wire Made Finer!" That's why Hudson-Winsted fine wires are the first choice of electrical, radio-TV and electronic manufacturers whose products are noted for reliability and long life.

◎ Tell us your wire problems and requirements. Our research, engineering and production facilities are at your disposal. Let us quote!

Hudco Winco hudson wire company

general offices: ossining, n. y. ◎ winsted division, winsted, conn.

New Process for Cleaning Cartridge Cases

A process which cleans steel cartridge cases 50 per cent faster than conventional methods is announced by the **B. F. Goodrich Company.** The cleaning process is one of the important steps in the manufacture of shells for the Ordnance Corps.

★ ★ ★

The new system is the defense version of a continuous process for cleaning and pickling steel. Known as the B. F. Goodrich-Curran automatic spray pickling machine, the process is used commercially to mass produce such metal articles as bath tubs, refrigerator liners, panels for electric and gas stoves, fluorescent light reflectors and automatic washing machine liners and tubs.

★ ★ ★

Switched by re-design to production for defense, the new system handles the larger sizes of artillery and mortar shell cases at a high production rate. The B. F. Goodrich-engineered equipment is the world's first Curran pickling machine designed specifically for pickling steel cartridge cases.

★ ★ ★

Development of the new process is especially significant at this time because, due to the critical copper supply, most larger calibre ammunition produced in the United States in the future will be made with steel cases rather than brass, as used in World Wars I and II. Equipment needed for the new process is lined with rubber which withstands the highly corrosive action of the pickling acids used.

The Use of Basic Open-Hearth Semi-Killed Steels in the Manufacture of Wire Mill Products

(*Continued from page* 573)

fence and barbed wire has served to demonstrate the value of semi-killed steels in making wire products requiring uniform bend characteristics and tensile values.

★ ★ ★

During the various operations carried out in the wire mill, the products are constantly checked by the mill foremen and the Metallurgical Department Inspectors. Making the usual range of diversified

wire products, from small brads through 80 penny nails, the many types of wire, including bright market wire, hard galvanized wire, line and stay wire for field fence, buckle wire, barbed wire, rock fastener and stapling wire, requires continual inspection during the processing operations. This checking covers gaging, tensile testing, rock-away testing, weight coating test, and Preece test to determine the uniformity of the zinc coating on the galvanized wire.

★ ★ ★

Throughout all our operations, the use of semi-killed steels has proved to be satisfactory in every respect. The various phases of the operations, where difficulties might have been anticipated, revealed no slowing up of production and necessitated no changes in our physical set-up. Cleaning, drawing, cold-heading in nail manufacture, galvanizing, welding on the mat machines, banding tests and tensile values have proven satisfactory.

★ ★ ★

The adoption of semi-killed steel to replace rimmed steel was welcomed by the Open Hearth Department, since it resulted in eliminating several extra operations involving labor and handling that are a part of producing rimmed steel. This elimination of extra operations, combined with high yield, add up to increased economy of production.

★ ★ ★

The sum of these favorable qualities, plus the uniformity of mechanical properties of the finished wire products, demonstrate the suitability of semi-killed steels for wire mill operations.

★ ★ ★

THE OCTOBER CONVENTION ISSUE

Your advertising in the October issue of WIRE AND WIRE PRODUCTS is a must. This important number of the magazine carries preprints of technical papers to be presented at the Annual Wire Association Convention and other convention features. Due to its long life and high reference qualities your advertising in October has exceptionally high value. Make your plans now to be represented in this very special issue.

AMERICAN IRON AND STEEL INSTITUTE
150 FIFTH AVENUE, NEW YORK 1, N. Y.

AIS 10

Total Number of Companies Included 130

APRIL - 1951
Month

SHIPMENTS OF STEEL PRODUCTS
ALL GRADES INCLUDING CARBON, ALLOY AND STAINLESS
(Net Tons)

Covering Net Shipments (Excluding Shipments to Members of the Industry for Conversion into Further Finished Products or for Resale)

STEEL PRODUCTS	Items	Current Month					To Date This Year				
		Carbon	Alloy	Stainless	Total	Per cent of Total Shipments	Carbon	Alloy	Stainless	Total	Per cent of Total Shipments
Ingots	1A	75,970	19,614	1,747	97,331	1.5	318,258	73,200	7,217	398,675	1.5
Blooms, slabs, billets, tube rounds, sheet bars, etc.	1B	125,050	47,523	1,675	174,248	2.6	536,720	180,811	5,878	723,409	2.7
Skelp	2	14,194	-	-	14,194	0.2	45,540	-	-	45,540	0.2
Wire rods	3	72,949	2,260	325	75,534	1.1	282,021	7,435	1,434	290,890	1.1
Bars—Hot rolled (incl. light shapes)	14	552,643	179,417	3,555	735,615	11.1	2,194,053	730,746	13,774	2,938,573	11.1
Bars—Reinforcing	15	140,568	-	-	140,568	2.1	597,878	-	-	597,878	2.3
Bars—Cold finished	16	126,338	28,777	3,471	158,586	2.4	493,262	109,624	14,001	616,887	2.3
Bars—Tool Steel	17	2,327	11,212	-	13,539	0.2	9,419	42,442	-	51,861	0.2
Wire—Drawn	23	270,433	4,390	2,691	277,514	4.2	1,095,317	18,410	10,332	1,124,059	4.3
Wire—Nails & staples	24	74,182	-	4	74,186	1.1	297,786	-	17	297,803	1.1
Wire—Barbed & twisted	25	19,541	-		19,541	0.3	76,960	-	1	76,961	0.3
Wire—Woven wire fence	26	39,299	-		39,299	0.6	151,376	-	-	151,376	0.6
Wire—Bale ties	27	9,167	-	-	9,167	0.1	33,350	-	-	33,350	0.1

BRIGHT MUSIC WIRE

Manufactured by experienced wire specialists in our plant from the highest quality Swedish music stock. Sizes from .020" to .006" —Tolerances maintained to .0001"—Guaranteed production schedules.

Also makers of STAINLESS STEEL • HIGH AND LOW CARBON • FLAT WIRE • GEAR and PIN CRIMPING of STAINLESS and UNTEMPERED BRUSH WIRES.

SW SPECIALTY WIRE CO., INC.
77 Beacon Street Worcester 8, Mass.

REELS SPOOLS
ALL SIZES
WOOD-PLYWOOD-WOOD-METAL
RETURNABLE NON-RETURNABLE
Samples and Prices on Request
DURKEE MFG. CO. PINE RIVER, MINN.

WE BUY WE SELL

We Pay Highest Prices for Used Machinery
2—42-Inch RUBBER MILLS
1—PEERLESS BALE RUBBER CUTTER
100—NEB 16-CARRIER #2 BRAIDERS
50—Textile Mach. Co., 20-Carrier Braiders
All Machines Reconditioned in Our Own Shop
WIRE & TEXTILE MACHINERY INC.
P. O. BOX 436, PAWTUCKET, R. I.

WIRE RODS
Round, Square, Flat—High Carbon and Alloy Only
HARD DRAWN STEEL WIRE
from
GUSSSTAHLWERK WITTEN A. G.
Witten (Ruhr) Germany
Producers of High Quality & Alloy Steels
Send inquiries—specifications to:
MONTAN EXPORT, INC.
17 Battery Place, New York 4, N. Y.
Exclusive U. S. Representatives

MUSIC WIRE and SPECIAL WIRES
Music Wire for Industrial Purposes
In Over 100 Sizes, Polished and Tinned, from .0015" to .359" in dia.
Aluminum — Annealed — Belt Lacing — Brass, Soft and Spring — Copper, Bare and Tinned Coppered Steel Spring — Galvanized — Tinned
Monel — Nickel Silver — Pure Soft Nickel — Oil tempered, Steel Spring, Black Finish Phosphor Bronze, Spring Temper — Picture Wire — Iron Wire, Pure — Resistance Wire, Hoskins Chromel "A" — Stainless, Soft and Spring Temper — Tag Wire, 1000 in an Envelope — Florist Wire — Spooled and Coiled, ¼-½-1-5#
Wires Straightened and Cut to length — Small Gauges — Small orders our specialty
Wires and Strands for the fishermen. Trolling Wires, Copper-Monel-Stainless.
Leader Wires, "Wilstabrite" Stainless and "Silverbrite" Music.
THE MALIN & COMPANY
2514 Vestry Ave. Established in 1884 **Cleveland 13, Ohio**

***Buy the Best:* MONTGOMERY SILVER-PLATED COPPER WIRE**
No. 20-40 A.W.G.—Hard or Annealed—on spools.
Suitable for: Hookup Wire—Radio Frequency Cables—
Circuit and High Temperature Wires—as specified by
the Armed Services—and others.
WRITE FOR DETAILS
Also makers of Bare Tinsel Conductors
Send for samples and engineering data.
THE MONTGOMERY COMPANY
25 Canal St., Windsor Locks, Conn. Tel.: Windsor Locks 14

THE NEWBURY CO.
High and Low Carbon Steel Wire
125 BROAD STREET - BOSTON 10, MASS.
HAncock 6-7788

Reynolds New Control System Extends Electrode Life in Spot Welding Aluminum

Explanation of "slope control", a new control system that extends electrode life 20 — 30 times when spot welding aluminum with ordinary alternating-current welders, is contained in the lead article in "TECHNICAL ADVISOR #15", just issued by **Reynolds Metals Company**, 2500 South Third Street, Louisville 1, Kentucky.

★ ★ ★

The article details results of tests made with the new control system which restricts the flow of welding current during the first few cycles, allowing the welding current to build up gradually to maximum. This produces a gradual softening of metal under the electrode tip, helps maintain tip pressures, and holds down tip temperatures, thus reducing "sticking" almost to the vanishing point.

★ ★ ★

Copies of "TECHNICAL ADVISOR #15" are available without charge. Any engineer, designer or executive who requests it on his business letterhead will be placed on the mailing list to receive copies of the "Advisor" as issued. Write direct to Reynolds Metals Company, 2500 South Third Street, Louisville 1, Kentucky.

★ ★ ★

Bulletin on Furnaces For Tool Room Heat Treating

A new illustrated Bulletin, SC-151, describing the complete line of 'Surface' Standard Rated Furnaces for every tool room heat treat requirement is now available from **Surface Combustion Corporation**, Toledo, Ohio.

★ ★ ★

Emphasizing methods of precise heat treatment for maximum tool life, this bulletin describes controlled atmosphere furnaces and generators in addition to direct-fired, forced convection and pot furnaces.

★ ★ ★

Reviewed in detail are complete controlled atmosphere furnaces of horizontal and vertical types, with prepared atmosphere generators for clean hardening and annealing high speed steels, oven type direct fired furnaces for hardening and

DIAMOND POWDER RECLAIMING

A new and more efficient process has been developed that recovers higher percentages of greater purity of used diamond powders.

Diamonds from worn diamond grinding wheels, grinding wheel sludge and dust, cotton charged with powder used in die polishing, die washings and other diamond bearing scrap—all

RECLAIMED SUCCESSFULLY

Don't waste valuable diamond bearing material.

Send it to

NATIONAL RESEARCH CO.

25530 Little Mack Avenue
ST. CLAIRE SHORES
MICHIGAN

annealing or other general heat treatments, oven and pit type forced convection furnaces for all tempering and drawing requirements and pot furnaces of rectangular or circular type for salt bath drawing and nitriding.

★ ★ ★

The back page of this bulletin contains a hardness conversion table for handy reference in tool room and laboratory.

★ ★ ★

For copies of this Bulletin SC-151, write direct to Surface Combustion Corporation, Toledo 1, Ohio.

★ ★ ★

Yale and Town Sells Scale Business to Detecto Scales

The sale of it's Industrial Scale Business to **Detecto Sales, Inc.,** Brooklyn, New York, was announced by **Elmer F. Twyman,** Vice-President-In-Charge of the Philadelphia Division of **Yale & Towne Manufacturing Company.** Effective June 1, 1951, the transaction will involve scale patents, equipment, parts and inventory, but none of the Yale trade marks, except "KRON".

★ ★ ★

Mr. Twyman said that the space, machine hours, and manpower released by the sale of this branch of their business will be used to relieve the pressure of the defense requirements for Yale Industrial Trucks and Hoists.

★ ★ ★

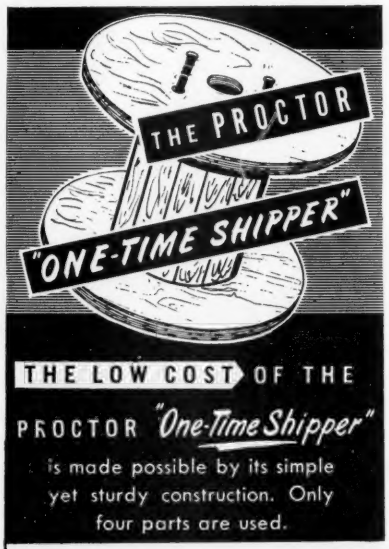
Atlas Mineral Products Expanding

George L. Wirtz, President of The **Atlas Mineral Products Company,** has announced further expansion of the company's Houston, Texas Plant. The new construction will include a modern lining shop and storage facilities which will give the Gulf States' industry the most modern and best equipped lining shop in the Southwest.

★ ★ ★

Sheet rubber stock based on a large number of natural and synthetic rubber compositions will continue to be calendered at the Mertztown, Penna. Plant but all types of linings will be installed at the Texas Plant.

★ ★ ★



THE LOW COST OF THE PROCTOR *"One-Time Shipper"* is made possible by its simple yet sturdy construction. Only four parts are used.

REELS FOR CABLE, INSULATED WIRE, PLASTICS

Engineered to meet your requirements

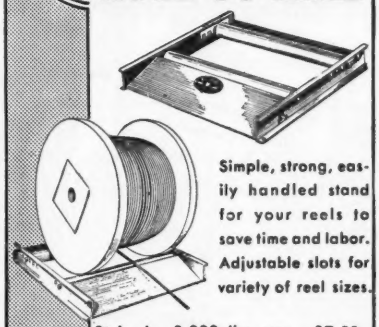
write to

PROCTOR REELS INC.
PROCTORSVILLE, VT.

Time to Discard **OLD-FASHIONED WAYS**

Jacks . . props . . shores . . horses . . why fool with these obsolete methods of handling reels? DO IT THE MODERN, EFFICIENT WAY! Reel or unreel wire, cable, rope with

ROLL-A-REEL



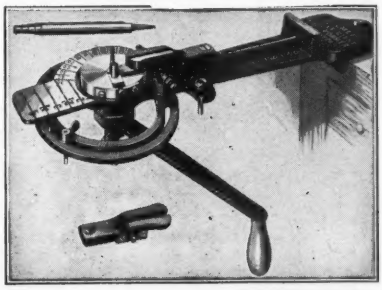
Simple, strong, easily handled stand for your reels to save time and labor. Adjustable slots for variety of reel sizes.

Style A: 2,000 lbs. cap. 37.50
Style B: 4,000 lbs. cap. 75.00
f.o.b. Cincinnati

WRITE FOR DETAILS TODAY

ROLL-A-REEL
327 WEST FOURTH STREET
CINCINNATI 2, OHIO

KILMER WIRE FORMER



Forms Eleven Sizes of Eyes from Flat, Round, Square or Half-Round Stock, also Almost Any Shape Desired

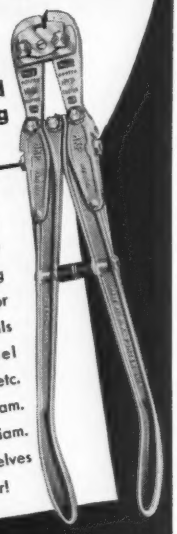
Adjustable for No. 3 to No. 21 Gage Wire

The cut on right shows a few of the thousands of the forms made on this **WIRE FORMER**

M. D. KILMER & COMPANY
4340 BROOKPARK RD.
CLEVELAND 9, OHIO

PORTER
CARBIDE-EDGED
CUTTERS

for extremely hard materials, including stainless steel.



Stand up under the hardest usage. Tough carbide edges firmly brazed to cutting jaws. Excellent for extra hard materials like stainless steel rods, wires, pins, etc.
#3 cuts to 5/16" diam.
#4 cuts to 3/8" diam.
Pay for themselves many times over!

ORDER THROUGH YOUR INDUSTRIAL SUPPLY HOUSE

H. K. PORTER, INC., Somerville 43, Mass.
Manufacturers of PORTER CUTTERS, PORTER PRUNERS and PORTER-FERGUSON Auto Body Fender Repair Tools

BORAX

An increasingly popular and satisfactory coating material for the dry drawing of ferrous wire

The acceptance of Borax as a coating material by an increasing number of the larger manufacturers of dry drawn ferrous wire is a testimonial to its effectiveness and satisfactory performance.

BORAX
- —is clean, safe, and easy to handle.
- —reduces dust nuisance, improves working conditions and boosts workers' morale.
- —coating gives protection to wire against rusting, permitting storage of coated wire for longer periods.
- —is reported as giving increased die life.

Give Borax a trial. Improved results have been obtained by using higher concentrations, some using as high as 30 to 40 ounces per gallon.

Wire for Bulletins

PACIFIC COAST BORAX CO.
Division of Borax Consolidated, Limited
CHICAGO LOS ANGELES PHILADELPHIA NEW YORK CLEVELAND

Manufacturers of the "20 Mule Team" package products

Wire Mill Practices at Republic Steel Corporation Gadsden Plant

(*Continued from page* 570)

nealed or galvanized wire. These machines produce ties from 12 through 16½ gauge in lengths between 3 feet 6 inches and 13 feet. Unless otherwise specified by the purchaser, annealed ties are furnished with a protective oil coating.

★ ★ ★

Recently added to the wire mill equipment were two machines for spooling annealed wire for automatic balers. Each of these machines is made to re-wind two coils simultaneously. To produce the various coil dimensions that are required to work with balers made by different manufacturers, the machines are equipped with interchangeable spools and variable speed drives. In addition to coil dimensions, each baling machine manufacturer specifies weight and number of feet of wire per coil. This makes it necessary to measure the length of wire being spooled and also requires that the wire be to relatively close tolerances. A rust inhibiting oil is applied to the wire as it is spooled. The equipment necessary to package the coils in the specified carton installed adjacent to the spooling machines completes the unit.

★ ★ ★

Wire in coils, bright, galvanized and annealed is transported in the mill and to the warehouses on low framed, tractor drawn, steel trucks or ram tractors. Bale ties and field fence are handled in a similar manner. Nails and barbed wire are moved on wooden pallets by lift tractors.

★ ★ ★

For storage and assembly of the diversity of products there are three warehouses. These buildings, with loading platforms along both sides at box car floor level, are a continuation of the mill building. Railroad tracks run parallel to and between each warehouse. This arrangement permits loading of freight cars from either or both of the warehouses along each track. All wire and wire products are shipped from the mill by rail.

★ ★ ★

DON'T
Let It Happen!

PICKLING fumes carry tiny drops of acid up to the roof girders, overhead cranes, conveyors, window frames, pipes and electrical fixtures. The acid eats through paint and into steel. Rust creeps in. Things go wrong!

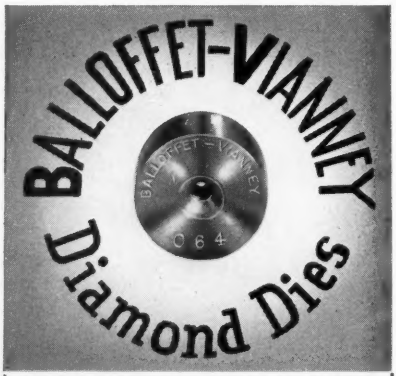
Don't let it happen in your plant! Use Oakite Composition No. 38, the new pickling additive that traps acid fumes before they leave the tank.

FREE Full information sent on request.

SPECIALIZED INDUSTRIAL CLEANING
OAKITE
MATERIALS • METHODS • SERVICE

OAKITE PRODUCTS, INC.
52A Thames Street, NEW YORK 6, N. Y.
Technical Service Representatives Located in Principal Cities of United States and Canada

BALLOFFET-VIANNEY
Diamond Dies



Skill and accuracy in manufacture with the use of selected stones make Balloffet-Vianney Diamond Dies the choice of the most critical users.

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DIAMOND DIES .0006 - .120 DIAMOND POWDER
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EXPERT RECUTTING
DIAMOND DIES, DIAMOND POWDERS
Eastern Representative of
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DIAMOND AND
CARBIDE WIRE
DRAWING DIES
DIAMOND POWDER
RUSCH WIRE DIE CORPORATION
Croton-on-Hudson, N. Y.

DIAMOND DIES
.000's to .102"
For many years . . .
Outstanding in quality,
workmanship and service.
FORT WAYNE WIRE DIE, INC.
2625 E. Pontiac St., Fort Wayne, Ind.

HEAT
TREATMENT
of
CARBON
STEELS
by F. Johnson

Discusses the various heat treatment methods and equipment. Chapters are devoted to the structure and physical constants of the finished product as these are influenced by composition and treatment, and to the testing of the mechanical properties of carbon steels. It also includes the U. S. standard specifications for carbon and alloy steels.

Over a hundred diagrams and illustrations and many helpful tables add to the value of this volume which will be of great interest to engineers using carbon steel, metallurgists and students of both engineering and metallurgy.

204 pages • 5½ x 8½ • $4.00

Order Your Copy From

WIRE AND WIRE PRODUCTS
300 Main Street Stamford, Conn.

New Book on Reynolds Metals Co.

Birth and growth of the second largest source of aluminum in the United States is outlined in a new book **"Reynolds Aluminum and The Company That Makes It"**, just issued by Reynolds Metals Company.

★ ★ ★

This book contains details on Reynolds production facilities, products, fields served and other information designed to give a clear picture of the company and its operations.

★ ★ ★

The production of aluminum from bauxite, the characteristics of aluminum, the many product forms in which it is made and the varied applications for them, are covered.

★ ★ ★

While Reynolds is well known as a source of aluminum pig, sheet, plate, wire, rod, bar, rolled and extruded shapes, cable and foil, some of its products are not so familiar. Aluminum powders and pastes, chemical aluminas and the recent growth of its industrial fabricating services are phases of the company's operations which may be new to many readers.

★ ★ ★

Most timely is the special insert showing some of the many military applications for aluminum.

★ ★ ★

Copies of the book are available without charge. Address your request to **Reynolds Metals Company**, 2500 South Third Street, Louisville, Kentucky.

Wire
Drawing
Diamond
Dies

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300 W. 56th St., NEW YORK
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Diamond and Carbide
Wire Drawing Dies our specialty
HOOSIER WIRE DIE, INC.
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DIAMOND DIES
QUALITY HIGH — COST LOW
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250 E. 43rd St., New York 17, N.Y.
Phone: ORegon 9-2578

WAYNE DIAMOND WIRE DRAWING
DIES

Quality in Diamonds + Perfection
in Workmanship = Good Wire.

Satisfactory DIAMOND DIES can only be made by those who have experience, skill and knowledge. WAYNE has all of these. Users have called WAYNE DIES "the best."

WAYNE WIRE DIE CO., 200 Pennsylvania Ave., Hillside, N. J.
Telephone: Elizabeth 2,2456

TOOLS TALIDE DIES
WEAR PARTS
Talide Metal, the super hard tungsten carbide gives increased production, better finish, less down time and scrap on all wire mill operations.
METAL CARBIDES CORPORATION
YOUNGSTOWN 5, OHIO

CHEMSTEEL CONSTRUCTION COMPANY, INC.
205 Chemsteel Bldg., Walnut St., Pittsburgh 32, Pa.
Send data on Engineering & Construction facilities for
ACID-ALKALI-PROOF CONSTRUCTION
of pickling and other tanks; flooring.
(TEAR OUT & MAIL WITH LETTERHEAD)

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MACHINERY FOR HIGH SPEED PRODUCTION
BRAIDERS CABLERS
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James Day (Machinery) Ltd., 90 Regent Street, London W1, England

'Surface' HEAT TREATING FURNACES
For Ferrous and Non-Ferrous Wire.
Prepared Atmosphere Generators.
SURFACE COMBUSTION CORPORATION
TOLEDO 1, OHIO

DIAMOND POWDER RECOVERED
Sludges, Wheels, Lapping Cotton
Powder Purified to 99% & Graded
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★ ★ ★

Complete data on its use is set forth. The company will be glad to send copies to those requesting it.

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A new bulletin, A.I.A., File No. 35i-231, describing and illustrating various lining materials available for pickling, plating and other operations requiring corrosion resisting linings is available to the wire industry. it also covers pipes and fittings, plating racks, rinse baskets and other utensils. Please write to **Nukem Products Corp.**, Buffalo 20, N. Y. for your copy of this informative bulletin.

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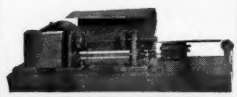
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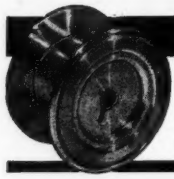
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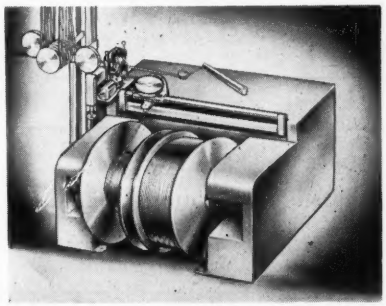

Entwistle — New Automatic Dual Take-Up

pre-determined footage controlled by a counter mechanism. When the reel is full, the wire is automatically transferred to the empty reel at high speed. A knife moves forward, cuts the wire cross-over between reels, and returns to its original position.

★ ★ ★

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(See Inhibitors, Pickling)

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CEMENTS—Acid Proof
Ceilcote Company, Cleveland, Ohio

CEMENTS—Refractory
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(See Cleaners—Metal)

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Apex Alkali Products Co., Phila., Pa.
Du Pont de Nemours, E. I. & Co., Electrochemical Dept., Wilmington, Del.
Houghton, E. F., Co., Philadelphia, Pa.
Magnus Chemical Co., Garwood, N. J.
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Oakite Products, Inc., New York, N. Y.
Standard Industrial Compounds Co., Chicago, Ill.

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Techema Co., The, Toronto, Canada

COMPOUNDS—Diamond
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Elgin National Watch Company, Industrial Products Division, Elgin, Ill.
Hyprez Div., Engis Equipment Co., Chicago, Ill.
Magnus Chemical Co., Garwood, N. J.

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COMPOUNDS—Metal Finishing
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(See Dies—Tungsten Carbide)

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Hoosier Wire Die, Inc., Ft. Wayne, Ind.
Indiana Wire Die Co., Ft. Wayne, Ind.
Kelly Wire Die Corp., New York, N. Y.
New England Wire Die Co., Worcester, Mass.
North American Philips Co., Inc., New York, N.Y.
Rusch Wire Die Corp., Croton-on-Hudson, N. Y.
Wayne Wire Die Co., Hillside, N. J.

DIES—Extrusion
American Carbide Die Company, Union City, N. J.
Carboloy Dept. of General Electric Co., Detroit, Mich.
Eastern Carbide Corp., New Rochelle, N. Y.
Firth-Sterling Steel & Carbide Corp., McKeesport, Pa.
Hartley Tool & Die Co., Thomaston, Conn.
Metal Carbides Corporation, Youngstown, Ohio.
Murex, Ltd., Rainham, England.
Rusch Wire Die Corp., Croton-on-Hudson, N. Y.
Wayne Wire Die Co., Hillside, N. J.

DIES—Eyelet
American Carbide Die Company, Union City, N. J.
Eastern Carbide Corp., New Rochelle, N. Y.
Hartley Tool & Die Co., Thomaston, Conn.
Kelly Wire Die Corp., New York, N. Y.
Rusch Wire Die Corp., Croton-on-Hudson, N. Y.

DIES—Pointing
Sjogren Tool and Machine Co., Auburn, Mass.

DIES—Repairs & Re-Cutting
American Carbide Die Company, Union City, N. J.
Ajax Industrial Supplies, Inc., Fort Wayne, Ind.
Balloffet-Vianney Wire Die Co., Inc., Guttenberg, N. J.
Boulin, Victor J., New York, N. Y.
Carboloy Dept. of General Electric Co., Detroit, Mich.
Cochaud Wire Die Corp., New York, N. Y.
Eastern Carbide Corp., New Rochelle, N. Y.
Firth-Sterling Steel & Carbide Corp., McKeesport, Pa.
Ft. Wayne Wire Die, Inc., Fort Wayne, Ind.
Hartley Tool & Die Co., Thomaston, Conn.
Hoosier Wire Die, Inc., Ft. Wayne, Ind.
Indiana Wire Die Co., Ft. Wayne, Ind.
Kelly Wire Die Corp., New York, N. Y.
Metal Carbides Corporation, Youngstown, Ohio.
New England Wire Die Co., Worcester, Mass.
North American Philips Co., Inc., New York, N. Y.
Rusch Wire Die Corp., Croton-on-Hudson, N. Y.
Vascoloy-Ramet Corp., North Chicago, Ill.
Wayne Wire Die Co., Hillside, N. J.

WHERE TO BUY, Continued

DIES—Special Shapes, Etc.
American Carbide Die Company, Union City, N. J.
Eastern Carbide Corp., New Rochelle, N. Y.
Firth-Sterling Steel & Carbide Corp., McKeesport, Pa.
Hartley Tool & Die Co., Thomaston, Conn.
Indiana Wire Die Co., Ft. Wayne, Ind.
Murex, Ltd., Rainham, England.
Rusch Wire Die Corp., Croton-on-Hudson, N. Y.

DIES—Swaging
Murex, Ltd., Rainham, England
Sjogren Tool and Mach. Co., Inc., Auburn, Mass.

DIES—Tantalum Carbide
American Carbide Die Company, Union City, N. J.
Balloffet-Vianney Wire Die Co., Inc., Guttenberg, N. J.
Carboloy Dept. of General Electric Co., Detroit, Mich.
Eastern Carbide Corp., New Rochelle, N. Y.
Firth-Sterling Steel & Carbide Corp., McKeesport, Pa.
Kelly Wire Die Corp., New York, N. Y.
Metal Carbides Corporation, Youngstown, Ohio
Rusch Wire Die Corp., Croton-on-Hudson, N. Y.
Vascoloy-Ramet Corp., North Chicago, Ill.

DIES—Tube Drawing
American Carbide Die Company, Union City, N. J.
Balloffet-Vianney Wire Die Co., Inc., Guttenberg, N. J.
Carboloy Dept. of General Electric Co., Detroit, Mich.
Eastern Carbide Corp., New Rochelle, N. Y.
Firth-Sterling Steel & Carbide Corp., McKeesport, Pa.
Hartley Tool & Die Co., Thomaston, Conn.
Indiana Wire Die Co., Fort Wayne, Ind.
Kelly Wire Die Corp., New York, N. Y.
Metal Carbides Corp., Youngstown, O.
Murex, Ltd., Rainham, England.
Rusch Wire Die Corp., Croton-on-Hudson, N. Y.
Vascoloy-Ramet Corp., North Chicago, Ill.

DIES—Tungsten Carbide
American Carbide Die Company, Union City, N. J.
Balloffet-Vianney Wire Die Co., Inc., Guttenberg, N. J.
Carboloy Dept. of General Electric Co., Detroit, Mich.
Eastern Carbide Corp., New Rochelle, N. Y.
Firth-Sterling Steel & Carbide Corp., McKeesport, Pa.
Hartley Tool & Die Co., Thomaston, Conn.
Hoosier Wire Die, Inc., Ft. Wayne, Ind.
Kelly Wire Die Corp., New York, N. Y.
Metal Carbides Corp., Youngstown, O.
Murex, Ltd., Rainham, England.
Rusch Wire Die Corp., Croton-on-Hudson, N. Y.
Vascoloy-Ramet Corp., North Chicago, Ill.
Wayne Wire Die Co., Hillside, N. J.

DRAW BENCHES—
(See MACHINERY—Draw Benches)

DRUMS—Flange Steel
Hubbard Spool Company, Chicago, Ill.
Niles Steel Products Division, Republic Steel Corporation, Niles, Ohio

DRUMS—Vulcanizing
Mossberg Pressed Steel Corp., Attleboro, Mass.
Watson Machine Co., The, Paterson, N. J.

DRYING EQUIPMENT—
Carl-Mayer Corp., The, Cleveland, Ohio
Industrial Ovens, Inc., Cleveland, Ohio
Rockwell, W. S. Co., Fairfield, Conn.
Ross, J. O., Engineering Corp., New York, N. Y.

ENGINEERS—Consulting
Copper—Leonard D. Walde, North Plainfield, N. J.
Metal Fatigue—Fatigue of Materials Laboratory, Princeton, N. J.
Spring Design—Carlson Co., The, New York, N. Y.
Wire Mill—Lewis, Kenneth B., Worcester, Mass.

EQUIPMENT—Insulation Testing
Davis, R. L., Elec. Co., Wallingford, Conn.
Entwistle, James L., Co., Pawtucket, R. I.

EYELETS—Brass or Zinc
Platt Bros. & Co., The, Waterbury, Conn.

FENCING & FENCES—Wire
Interlocking Fence Co., Morton, Ill.

FLUXES—Soldering
American Chemical Paint Co., Ambler, Pa.

FOAM PRODUCING COMPOUNDS—
American Chemical Paint Co., Ambler, Pa.
Parkin Chemical Company, The, Pittsburgh, Pa.

FRICTION PAY-OFF STANDS—
Industrial Ovens, Inc., Cleveland, Ohio.

FURNACES—Annealing
Ajax Electric Co., Inc., Philadelphia, Pa.
Carl-Mayer Corp., The, Cleveland, Ohio.
Electric Furnace Co., Salem, Ohio.
Holden, A. F., Co., The, Detroit, Mich.
Rockwell, W. S. Co., Fairfield, Conn.
Surface Combustion Corp., Toledo, Ohio.
Trauwood Engr. Co., Cleveland, Ohio.
Wilson, Lee, Engr. Co., Cleveland, Ohio.

FURNACES—Automatic
Electric Furnace Co., Salem, Ohio.
Surface Combustion Corp., Toledo, Ohio.
Wilson, Lee, Engr. Co., Cleveland, Ohio.

FURNACES—Brazing
Electric Furnace Co., Salem, Ohio.
Rockwell, W. S. Co., Fairfield, Conn.

FURNACES—Bright Annealing
Electric Furnace Co., Salem, Ohio.
Michigan Oven Co., Detroit, Mich.
Rockwell, W. S. Co., Fairfield, Conn.
Surface Combustion Corp., Toledo, Ohio.
Wilson, Lee, Engr. Co., Cleveland, Ohio.

FURNACES—Electric
Electric Furnace Co., Salem, Ohio.
Rockwell, W. S. Co., Fairfield, Conn.
Trauwood Engineering Co., The, Cleveland, Ohio.

FURNACES—Galvanizing Equipment
Ajax Electric Co., Inc., Philadelphia, Pa.
Electric Furnace Co., Salem, Ohio.
Holden, A. F., Co., The, Detroit, Mich.
Rockwell, W. S. Co., Fairfield, Conn.
Surface Combustion Corp., Toledo, Ohio.
Trauwood Engineering Co., The, Cleveland, Ohio.
Wilson, Lee, Engr. Co., Cleveland, Ohio.

FURNACES—Hard'ing & Temp'ing
Ajax Electric Co., Inc., Philadelphia, Pa.
Electric Furnace Co., Salem, Ohio.
Holden, A. F., Co., The, Detroit, Mich.
Rockwell, W. S. Co., Fairfield, Conn.
Surface Combustion Corp., Toledo, Ohio.
Trauwood Engineering Co., The, Cleveland, Ohio.

FURNACES—Lead Melting
Electric Furnace Co., Salem, Ohio.
Rockwell, W. S. Co., Fairfield, Conn.
Surface Combustion Corp., Toledo, Ohio.

FURNACES—Non-Oxidizing
Ajax Electric Co., Inc., Philadelphia, Pa.
Electric Furnace Co., Salem, Ohio.
Holden, A. F., Co., The, Detroit, Mich.
Surface Combustion Corp., Toledo, Ohio.

FURNACES—Normalizing
Ajax Electric Co., Inc., Philadelphia, Pa.
Carl-Mayer Corp., The, Clevel nd, Ohio.
Electric Furnace Co., Salem, Ohio.
Holden, A. F., Co., The, Detroit, Mich.
Rockwell, W. S. Co., Fairfield, Conn.
Surface Combustion Corp., Toledo, Ohio.

FURNACES—Pot (oil, gas, electric)
Ajax Electric Co., Inc., Philadelphia, Pa.
Holden, A. F., Co., The, Detroit, Mich.

FURNACES—Resistance Heating, Strand
Trauwood Engineering Co., The, Cleveland, Ohio.

FURNACES—Salt Bath
Ajax Electric Co., Inc., Philadelphia, Pa.
Electric Furnace Co., Salem, Ohio.
Holden, A. F., Co., The, Detroit, Mich.
Rockwell, W. S. Co., Fairfield, Conn.
Surface Combustion Corp., Toledo, Ohio.

FURNACES—Wire, Strip & Sheet
Carl-Mayer Corp., The, Cleveland, Ohio.
Eisler Engineering Co., Newark, N. J.
Electric Furnace Co., Salem, Ohio.
Michigan Oven Co., Detroit, Mich.
Rockwell, W. S. Co., Fairfield, Conn.
Surface Combustion Corp., Toledo, Ohio.
Trauwood Engineering Co., The, Cleveland, Ohio.
Wilson, Lee, Engr. Co., Cleveland, Ohio.

GALVANIZING EQUIPMENT—
Steel Equipment Co., Cleveland, Ohio.
Wean Equipment Corp., Cleveland, Ohio.

GRINDERS—Roll
Norton Co., The, Worcester, Mass.

HAMMERS—Swaging
Sjogren Tool and Machine Co., Auburn, Mass.

HOOKS—Pickling & Liming
Bronze Die Casting Co., Pittsburgh, Pa.
Youngstown Welding & Engineering Co., Youngstown, Ohio.

HOISTS—Electric Travelling
Cleveland Tramrail Div. of The Cleveland Crane & Engineering Co., Wickliffe, Ohio.

IMPREGNATING MATERIALS—
Standard Varnish Works, New York, N. Y.

INHIBITORS—Pickling
American Chemical Paint Co., Ambler, Pa.
Apex Alkali Products Co., Philadelphia, Pa.
Du Pont de Nemours, E. I. & Co., Electrochemical Dept., Wilmington, Del.
Houghton, E. F. & Co., Philadelphia, Pa.
Oakite Products, Inc., New York, N. Y.
Parkin Chemical Company, The, Pittsburgh, Pa.

INSULATING LACQUERING SYSTEMS—Continuous
American Insulating Machine Co., Phila., Pa.
Industrial Ovens, Inc., Cleveland, Ohio.

INSULATING MATERIALS—
Du Pont de Nemours, E. I., Co., Wilmington, Del.
Glass Fibers, Inc., Waterville, Ohio.
Merrimac Paper Co., New York, N. Y.
New England Lacquer Co., E. Providence, R. I.
Owens Corning Fiberglas Corp., Toledo, O.
Standard Varnish Works, New York, N. Y.
Twitchell, E. W., Philadelphia, Pa.

INSULATING MATERIALS—Paper—For Electric Wire Cable.
Merrimac Paper Co., New York, N. Y.
Twitchell, E. W., Philadelphia, Pa.

LACQUERS—For Electric Wire
New England Lacquer Co., E. Providence, R. I.
Standard Varnish Works, New York, N. Y.

LAME—LAHN—
Montgomery Co., The, Windsor Locks, Conn.

LATHES—Die Reaming
Carboloy Dept. of General Electric Co., Detroit, Mich.
Roos, Tool & Mfg. Co., Montclair, N. J.

LIME—
Warner Co., Philadelphia and Bellefonte, Pa.

LININGS—Acid and Alkali Proof
Haveg Corp., Newark, Del.
Heil Process Equipment Corp., Cleveland, Ohio

LUBRICANTS — For Metal Cutting, Stamping and Drawing
Apex Alkali Products Co., Philadelphia, Pa.
Houghton, E. F. & Co., Philadelphia, Pa.
Magnus Chemical Co., Garwood, N. J.
Miller, R. H., Co., Inc., Homer, N. Y.
Nopco Chemical Co., Harrison, N. J.
Oakite Products, Inc., New York, N. Y.
Standard Industrial Compounds Co., Chicago, Ill.

LUBRICANTS—Wire Drawing
(See Compounds—Wire Drawing)

LUBRICANTS—Wire Rope
Swift & Co., Chicago, Ill.

MACHINERY—Armoring (Cable, Wire Hose)
American Insulating Mach'y Co., Phila., Pa.
New England Butt Co., Providence, R. I.
Sleeper & Hartley, Inc., Worcester, Mass.
Syncro Machine Co., Perth Amboy, N. J.
Watson Machine Co., Paterson, N. J.

MACHINERY—Barbed Wire
Glader Machine Works, Chicago, Ill.
Wafios, Machinenfabrik, Württ., Germany
Wean Engineering Co., Cleveland, Ohio.

MACHINERY—Bead Wrapping
Terkelsen Machine Co., Boston, Mass.

MACHINERY—Bolts & Rivets
Meyer, Roth & Pastor Machinenfabrik, Koln-Radderberg, Germany

MACHINERY—Braiding
Fidelity Machine Co., Inc., Philadelphia, Pa.
Mossberg Pressed Steel Corp., Attleboro, Mass.

WHERE TO BUY, Continued

New England Butt Co., Providence, R. I.
Wire & Textile Mach'y, Inc. (used) Pawtucket, R.I.

MACHINERY—Brazing
Eisler Engineering Co., Newark, N. J.
Syncro Machine Co., Perth Amboy, N. J.

MACHINERY—Bunching
American Insulating Mach'y Co., Phila., Pa.
Cook, Edw., Machy. Co., Wallingford, Conn.
Federal Manufacturing Co., Wallingford, Conn.
Haskell-Dawes Machine Co., Philadelphia, Pa.
New England Butt Co., Providence, R. I.
Sleeper & Hartley, Inc., Worcester, Mass.
Syncro Machine Co., Perth Amboy, N. J.
Watson Machine Co., Paterson, N. J.
Wire & Textile Mach'y, Inc. (used) Pawtucket, R.I.

MACHINERY—Bundling, Scrap
Sleeper & Hartley, Inc., Worcester, Mass.
Vaughn Machinery Co., Cuyahoga Falls, O.

MACHINERY—Cable, Electric
American Insulating Mach'y Co., Phila., Pa.
Eidelity Machine Co., Inc., Philadelphia, Pa.
Haskell-Dawes Machine Co., Philadelphia, Pa.
New England Butt Co., Providence, R. I.
Sleeper & Hartley, Inc., Worcester, Mass.
Syncro Machine Co., Perth Amboy, N. J.
Watson Machine Co., Paterson, N. J.

MACHINERY—Cable, Rope Closing
New England Butt Co., Providence, R. I.
Watson Machine Co., Paterson, N. J.

MACHINERY—Chain Making
Meyer, Roth & Pastor Machinenfabrik, Koln-Radерberg, Germany

MACHINERY—Coilers
Boyd & Sons Manufacturing Co., Phila., Pa.
Eisler Engineering Co., Newark, N. J.
Entwistle, Jas. L. Co., Pawtucket, R. I.
Morgan Construction Co., Worcester, Mass.
National Machy. Exch. (used) New York, N. Y.
New England Butt Co., Providence, R. I.
Sleeper & Hartley, Inc., Worcester, Mass.
Syncro Machine Co., Perth Amboy, N. J.
Torrington Mfg. Co., Torrington, Conn.
Waterbury-Farrel Fdry. & Mach. Co., Waterbury, Conn.
Watson Machine Co., Paterson, N. J.
Wean Equipment Corp., Cleveland, Ohio
Wire & Textile Mach'y, Inc. (used) Pawtucket, R.I.

MACHINERY—Cold Heading
(See Cold Headers)

MACHINERY—Copper Wire Drawing and Rolling
Aetna-Standard Engineering Co., Youngstown, Ohio
American Insulating Mach'y Co., Phila., Pa.
National Mach'y Exch. (Used), New York, N. Y.
Syncro Machine Co., Perth Amboy, N. J.
Torrington Mfg. Co., Torrington, Conn.
Vaughn Machinery Co., Cuyahoga Falls, O.
Waterbury-Farrel Fdry. & Mach. Co., Waterbury, Conn.

MACHINERY—Covering Wire
American Insulating Mach'y Co., Phila., Pa.
Fidelity Machine Co., Inc., Philadelphia, Pa.
New England Butt Co., Providence, R. I.
Royle, John & Sons, Paterson, N. J.
Standard Machinery Co., Mystic, Conn.
Syncro Machine Co., Perth Amboy, N. J.
Watson Machine Co., Paterson, N. J.

MACHINERY—Cutting
Eisler Engineering Co., Newark, N. J.
Lewis Machine Co., The, Cleveland, Ohio
Mettler Machine Tool, Inc., New Haven, Conn.
National Mach'y Exch. (Used) New York, N. Y.
Porter, H. K., Inc., Everett, Mass.
Sleeper & Hartley, Inc., Worcester, Mass.
Syncro Machine Co., Perth Amboy, N. J.
Wean Equipment Corp., Cleveland, Ohio

MACHINERY—Die Making
Carboloy Dept. General Electric Co., Detroit, Mich.
Firth-Sterling Steel & Carbide Corp., McKeesport, Pa.
Kelly Wire Die Corp., New York, N. Y.
Roos Tool & Mfg. Co., Montclair, N. J.
Wayne Wire Die Co., Hillside, N. J.

MACHINERY—Draw Benches
Aetna-Standard Engineering Co., Youngstown, Ohio
Morgan Construction Co., Worcester, Mass.
Torrington Mfg. Co., Torrington, Conn.
Vaughn Machinery Co., Cuyahoga Falls, O.
Wean Equipment Corp., Cleveland, Ohio

MACHINERY—Edging
Wean Equipment Corp., Cleveland, Ohio

MACHINERY—Enameling
American Insulating Mach'y Co., Phila., Pa.
Industrial Ovens, Inc., Cleveland, Ohio
Michigan Oven Co., Detroit, Mich.
Syncro Machine Co., Perth Amboy, N. J.

MACHINERY—Extruding
National Rubber Machinery Co., Akron, Ohio
Royle, John, & Sons, Paterson, N. J.
Standard Machinery Co., Mystic, Conn.
Wire & Textile Mach'y, Inc. (used) Pawtucket, R.I.

MACHINERY—Fence
Glader, Wm., Machine Works, Chicago, Ill.
Interlocking Fence Co., Morton, Ill.
Wafios, Machinenfabrik, Württ., Germany
Wean Equipment Corp., Clevel nd, Ohio

MACHINERY—Filament Coil Winding
Eisler Engineering Co., Newark, N. J.

MACHINERY—Flat Wire
Sleeper & Hartley, Inc., Worcester, Mass.
Torrington Mfg. Co., Torrington, Conn.
Wean Equipment Corp., Cleveland, Ohio

MACHINERY—Galvanizing
(See Galvanizing Equipment)

MACHINERY—Galvanizing Wire
Sleeper & Hartley, Inc., Worcester, Mass.
Steel Equipment Co., Cleveland, Ohio
Vaughn Machinery Co., Cuyahoga Falls, O.
Wean Equipment Corp., Cleveland, O.
Wilson, Lee, Engr. Co., Cleveland, Ohio

MACHINERY—Gang Winders
Entwistle, Jas. L. Co., Pawtucket, R. I.
Syncro Machine Co., Perth Amboy, N. J.
Watson Machine Co., Paterson, N. J.

MACHINERY—Grinding
Norton Co., The, Worcester, Mass.

MACHINERY—Insulating
American Insulating Mach'y Co., Phila., Pa.
Cook, Edw., Machy. Co., Wallingford, Conn.
Ets. Pourtier Frères, Romainville, France
Fidelity Machine Co., Inc., Philadelphia, Pa.
National Rubber Machinery Co., Akron, Ohio
New England Butt Co., Providence, R. I.
Royle, John & Sons, Paterson, N. J.
Syncro Machine Co., Perth Amboy, N. J.
Watson Machine Co., Paterson, N. J.

MACHINERY—Knitting
Fidelity Machine Co., Inc., Philadelphia, Pa.

MACHINERY—Lock Washer
Sleeper & Hartley, Inc., Worcester, Mass.

MACHINERY—Looms, Wire Weaving
Interlocking Fence Co., Morton, Ill.

MACHINERY—Magnet Wire
American Insulating Mach'y Co., Phila., Pa.
New England Butt Co., Providence, R. I.
Sleeper & Hartley, Inc., Worcester, Mass.
Syncro Machine Co., Perth Amboy, N. J.

MACHINERY—Material Handling
Cleveland Tramrail Div. of The Cleveland Crane & Engineering Co., Wickliffe, O.

MACHINERY—Measuring Wire & Cable
Durant Mfg. Co., Milwaukee, Wis.
Entwistle, Jas. L. Co., Pawtucket, R. I.
New England Butt Co., Providence, R. I.
Standard Mill Supply Co., Pawtucket, R. I.
Syncro Machine Co., Perth Amboy, N. J.
Watson Machine Co., Paterson, N. J.

MACHINERY—Nail and Tack
Glader, Wm., Machine Works, Chicago, Ill.
Meyer, Roth & Pastor Machinenfabrik, Koln-Radерberg, Germany
National Mach'y Exch. (Used), New York, N. Y.
Sleeper & Hartley, Inc., Worcester, Mass.
Wafios, Machinenfabrik, Württ., Germany
Wean Equipment Corp., Cleveland, Ohio

MACHINERY—Panning
American Insulating Mach'y Co., Phila., Pa.
Syncro Machine Co., Perth Amboy, N. J.
Wire & Textile Mach'y, Inc. (used) Pawtucket, R.I.

MACHINERY—Pickling
Chemsteel Construction Co., Pittsburgh, Pa.
Youngstown Welding & Engineering Co., Youngstown, Ohio

MACHINERY—Pin Making
Meyer, Roth & Pastor Machinenfabrik, Koln-Radерberg, Germany

MACHINERY—Pointing
Aetna-Standard Engineering Co., Youngstown, Ohio
Morgan Construction Co., Worcester, Mass.
National Mach'y Exch. (Used), New York, N. Y.
Scudder, E. J., Fdry. & Mach. Co., Trenton, N. J.
Sleeper & Hartley, Inc., Worcester, Mass.
Syncro Machine Co., Perth Amboy, N. J.
Vaughn Machinery Co., Cuyahoga Falls, O.
Waterbury-Farrel Foundry & Machine Co., Waterbury, Conn.
Wean Equipment Corp., Cleveland, Ohio

MACHINERY—Poultry Wire Fencing
Interlocking Fence Co., Morton, Ill.

MACHINERY—Pre-Heater for Wire (for Extrusion of Plastics)
Industrial Ovens, Inc., Cleveland, Ohio
National Rubber Machinery Co., Akron, Ohio

MACHINERY—Rod Mill
Morgan Construction Co., Worcester, Mass.
Wean Equipment Corp., Cleveland, Ohio

MACHINERY—Rolling Mill
Morgan Construction Co., Worcester, Mass
National Machy. Exch. (used) New York, N. Y.
Syncro Machine Co., Perth Amboy, N. J.
Torrington Mfg. Co., Torrington, Conn.
Waterbury-Farrel Foundry & Machine Co., Waterbury, Conn.
Wean Engineering Co., Cleveland, Ohio

MACHINERY—Rubber Insulating
National Rubber Machinery Co., Akron, Ohio
Royle, John & Sons, Paterson, N. J.
Standard Machinery Co., Mystic, Conn.
Wire & Textile Mach'y, Inc. (used) Pawtucket, R.I.

MACHINERY—Rubber Tubing and Straining
National Rubber Machinery Co., Akron, Ohio
New England Butt Co., Providence, R. I.
Royle, John & Sons, Paterson, N. J.
Sleeper & Hartley, Inc., Worcester, Mass.
Standard Machinery Co., Mystic, Conn.
Wire & Textile Mach'y, Inc. (used) Pawtucket, R.I.

MACHINERY—Screw Wire
Sleeper & Hartley, Inc., Worcester, Mass.

MACHINERY—Special
American Insulating Mach'y Co., Phila., Pa.
Davis, R. L. Electric Co., Wallingford, Conn.
Emory, Robert J., Co., Newark, N. J.
Entwistle, Jas. L. Co., Pawtucket, R. I.
New England Butt Co., Providence, R. I.
Scudder, E. J., Fdry. & Mach. Co., Trenton, N. J.
Sjogren Tool and Machine Co., Auburn, Mass.
Sleeper & Hartley, Inc., Worcester, Mass.
Standard Machinery Co., Mystic, Conn.
Syncro Machine Co., Perth Amboy, N. J
Watson Machine Co., Paterson, N. J.
Wean Equipment Corp., Cleveland, Ohio

MACHINERY—Spooling
American Insulating Mach'y Co., Phila., Pa
Boyd & Sons Manufacturing Co., Phila., Pa.
Davis, R. L. Electric Co., Wallingford, Conn.
Eisler Engineering Co., Newark, N. J.
Emory, Robert J., Co., Newark, N. J.
Entwistle, Jas. L. Co., Pawtucket, R. I.
Fidelity Machine Co., Inc., Philadelphia Pa.
National Mach'y Exch. (Used), New York, N. Y.
New England Butt Co., Providence, R. I.
Sleeper & Hartley, Inc., Worcester, Mass.
Steel Equipment Co., Cleveland, Ohio
Syncro Machine Co., Perth Amboy, N. J.
Vaughn Machinery Co., Cuyahoga Falls, O.
Watson Machine Co., Paterson, N. J.
Wean Equipment Corp., Cleveland, Ohio
Wire & Textile Mach'y, Inc. (used) Pawtucket, R.I.

MACHINERY—Spring Making
Carlson Company, The, New York, N. Y.
Lundahl Corp., Hartford, Conn.
National Mach'y Exch. (Used), New York, N. Y.
Sleeper & Hartley, Inc., Worcester, Mass.
Torrington Mfg. Co., Torrington, Conn.
Wafios, Machinenfabrik, Württ., Germany
Wells, Frank L., Co., Kenosha, Wisc.

MACHINERY—Staple
Sleeper & Hartley, Inc., Worcester, Mass.
Wafios, Machinenfabrik, Württ., Germany

MACHINERY—Straightening & Cutting
Lewis Machine Co., The, Cleveland, Ohio
Mettler Machine Tool Co., New Haven, Conn.
Meyer, Roth & Pastor Machinenfabrik, Koln-Radерberg, Germany
National Mach'y Exch. (Used), New York, N. Y.
Norsholm Industries, Rochester, Michigan
Sleeper & Hartley, Inc., Worcester, Mass.
Wean Equipment Corp., Cleveland, Ohio
Wells, Frank L., Co., Kenosha, Wisc.

MACHINERY—Stranding
Haskell-Dawes Machine Co., Philadelphia, Pa.
Hughesville Machine & Tool Co., Hughesville, Pa.
New England Butt Co., Providence, R. I.
Sleeper & Hartley, Inc., Worcester, Mass.
Syncro Machine Co., Perth Amboy, N. J.
Watson Machine Co., Paterson, N. J.

MACHINERY—Strip Steel
Aetna-Standard Engineering Co., Youngstown, Ohio
Steel Equipment Co., Cleveland, Ohio
Wean Equipment Corp., Cleveland, Ohio

MACHINERY—Swaging
National Mach'y Exch. (Used), New York, N. Y.
Sleeper & Hartley, Inc., Worcester, Mass.
Syncro Machine Co., Perth Amboy, N. J.
Waterbury-Farrel Foundry & Machine Co., Waterbury, Conn.

MACHINERY—Taping
American Insulating Mach'y Co., Phila., Pa.
Ets. Pourtier Frères, Romainville, France
New England Butt Co., Providence, R. I.
Syncro Machine Co., Perth Amboy, N. J.

WHERE TO BUY, Continued

Watson Machine Co., Paterson, N. J.
Wire & Textile Mach'y, Inc. (used) Pawtucket, R.I.

MACHINERY—Testing, Physical
Lundahl Corporation, Hartford, Conn.
Scott Testers, Inc., Providenec, R. I.

MACHINERY—Testing Equipment—Electrical
Davis, R. L. Elec. Co., Wallingford, Conn.
Entwistle, Jas. L. Co., Pawtucket, R. I.
Manson Laboratories, Stamford, Conn.
Wire & Textile Mach'y, Inc. (used) Pawtucket, R.I.

MACHINERY—Tinning Wire
American Insulating Mach'y Co., Phila., Pa.
New England Butt Co., Providence, R. I.
Steel Equipment Co., Cleveland, Ohio.
Syncro Machine Co., Perth Amboy, N. J.
Wean Equipment Corp., Cleveland, Ohio.

MACHINERY—Tinsel Rolling Mills
American Insulating Mach'y Co., Phila., Pa.
Synero Machine Co., Perth Amboy, N. J.
Torrington Mfg. Co., Torrington, Conn.

MACHINERY—Trolley Wire
Torrington Mfg. Co., Torrington, Conn.
Vaughn Machinery Co., Cuyahoga Falls, O.

MACHINERY—Tube Mill
Marshall-Richards Machine Company, Inc., Trenton, N. J.

MACHINERY—Twinning
(See Mach.—Bunching)

MACHINERY—Twisters, Wire
Cook, Edw., Machy. Co., Wallingford, Conn.
Federal Manufacturing Co., Wallingford, Conn.

MACHINERY—Welding Wire
Eisler Engineering Co., Newark, N. J.
Micro Products Co., Chicago, Ill.
Syncro Machine Co., Perth Amboy, N. J.

MACHINERY—Winding
American Insulating Mach'y Co., Phila., Pa.
Davis, R. L. Electric Co., Wallingford, Conn.
Eisler Engineering Co., Newark, N. J.
New England Butt Co., Providence, R. I.
Sleeper & Hartley, Inc., Worcester, Mass.
Standard Mill Supply, Pawtucket, R. I.
Syncro Machine Co., Perth Amboy, N. J.
Watson Machine Co., Paterson, N. J.

MACHINERY—Winding Wire
Federal Manufacturing Co., Wallingford, Conn.
Standard Mill Supply, Pawtucket, R. I.

MACHINERY—Wind-up (Constant Tension, Variable Speed)
Aetna-Standard Engineering Co., Youngstown, Ohio
Davis, R. L. Electric Co., Wallingford, Conn.
Federal Manufacturing Co., Wallingford, Conn.
Industrial Ovens, Inc., Cleveland, Ohio
Marshall-Richards Machine Co., Inc., Trenton, N.J.
Standard Machine Co., Mystic, Conn.
Watson Machine Co., Paterson, N. J.

MACHINERY—Wire Bending
Eisler Engineering Co., Newark, N. J.
Kilmer, M. D., & Co., Cleveland, Ohio.

MACHINERY—Wire Drawing
Aetna-Standard Engineering Co., Youngstown, Ohio
American Insulating Mach'y Co., Phila., Pa.
Kurt Orban Co., Inc., New York, N. Y.
Marshall-Richards Machine Co., Inc., Trenton, N.J.
Morgan Construction Co., Worcester, Mass.
National Mach'y Exch. (Used), New York, N. Y.
Scudder, E. J., Fdry. & Mach. Co., Trenton, N. J.
Sleeper & Hartley, Inc., Worcester, Mass.
Steel Equipment Co., Cleveland, Ohio.
Svenska Telegrambyran (Morgardshammer), Stockholm, Sweden
Syncro Machine Co., Perth Amboy, N. J.
Vaughn Machinery Co., Cuyahoga Falls, O.
Waterbury-Farrel Foundry & Machine Co., Waterbury, Conn.
Wean Equipment Corp., Cleveland, Ohio.

MACHINERY—Wire Forming
Kilmer, M. D. & Co., Cleveland, Ohio.
Meyer, Roth & Pastor Machinenfabrik, Koln-Raderberg, Germany
National Mach'y Exch. (Used), New York, N. Y.
Sleeper & Hartley, Inc., Worcester, Mass.
Wafios, Machinenfabrik, Württ., Germany

MACHINERY—Wire Rope
New England Butt Co., Providence, R. I.
Syncro Machine Co., Perth Amboy, N. J.
Watson Machine Co., Paterson, N. J.

MACHINERY—Wood Screw
National Mach'y Exch. (Used), New York, N. Y.

MACHINERY—Wrapping Straight Lengths and Tubing
Angier Corporation, The, Framingham, Mass.
Terkelsen Machine Co., Boston, Mass.

MACHINERY—Wrapping Wire Coils
Angier Corporation, The, Framingham, Mass.
Terkelsen Machine Co., Boston, Mass.

MATERIAL HANDLING EQUIPMENT—
Cleveland Tramrail Div. of The Cleveland Crane & Engineering Co., Wickliffe, O.

MILLS—Tandem, Rolling & Edging
Torrington Mfg. Co., Torrington, Conn.
Wean Equipment Co., Cleveland, Ohio.

NAILS—Wire
American Steel & Wire Co., Cleveland, Chicago, New York.
Bethlehem Steel Co., Bethlehem, Pa.
Continental Steel Corp., Kokomo, Ind.
Keystone Steel & Wire Co., Peoria, Ill.
Roebling, John A. Sons Co., Trenton, N. J.
Wickwire Brothers, Inc, Cortland, N. Y.

OVENS—Cable Lacquering
American Insulating Mach'y Co., Phila., Pa.
Carl-Mayer Corp., The, Cleveland, Ohio.
Industrial Ovens, Inc., Cleveland, Ohio.
Michigan Oven Co., Detroit, Mich.

OVENS—Dehydrogenizing
Industrial Ovens, Inc., Cleveland, Ohio.

OVENS—Industrial
Industrial Ovens, Inc., Cleveland, Ohio.
Michigan Oven Co., Detroit, Mich.
Ross, J. O., Engr. Corp., New York, N. Y.

OVENS—Rod Bakers
Carl-Mayer Corp., The, Cleveland, Ohio.
Michigan Oven Co., Detroit, Mich.
Ross, J. O., Engr. Corp., New York, N. Y.

OVENS—Welding Rod Coating
Carl-Mayer Corp., The, Cleveland, Ohio.
Industrial Ovens, Inc., Cleveland, Ohio.
Ross, J. O., Engr. Corp., New York, N. Y.

PAINT—Acid Proof
Ceilcote Company, Cleveland, Ohio.
Standard Varnish Works, New York, N. Y.

PAINT BONDING CHEMICALS—
American Chemical Paint Co., Ambler, Pa.

PAINTS—Heat Resisting
American Chemical Paint Co., Ambler, Pa.
Standard Varnish Works, New York, N. Y.

PANS—Vulcanizing
Mossberg Pressed Steel Corp., Attleboro, Mass.

PAPER—Creped Wrapping
Angier Corporation, The, Framingh m, Mass.
Crepe-Kraft Company, The, Division National Waterproof Papers, Inc., Newark, N. J.
Terkelsen Machine Co., Boston, Mass.

PAPER—For Coil Wrapping and Corrosion Prevention
Angier Corporation, The, Framingham, Mass.
Crepe-Kraft Company, The, Division National Waterproof Papers, Inc., Newark, N. J.
Terkelsen Machine Co., Boston, Mass.

PATENT ATTORNEYS—
Lancaster, Allwine & Rommel, Washington, D. C.

PAY-OUT SYSTEMS—
(See Wind-up and Unwind Systems)

PHOSPHATE COATING CHEMICALS—
American Chemical Paint Co., Ambler, Pa.
Oakite Products, Inc., New York, N. Y.

PICKLING COMPOUNDS—
See (Inhibitors—Pickling)

PICKLING—Hooks, etc. Acid Resisting
Bronze Die Casting Co., Pittsburgh, Pa.
Youngstown Welding & Eng. Co., Youngstown, O.

PICKLING TANK LININGS—
Chemsteel Construction Co., Pittsburgh, Pa.
Haveg Corp., Newark, Del.
Heil Process Equipment Corp., Cleveland, Ohio.

PIPES & FITTINGS—Acid Resistant
Haveg Corp., Newark, Del.
Heil Process Equipment Corp., Cleveland, Ohio.

PLASTIC TESTERS—
Scott Testers, Inc., Providence, R. I.

PNEUMATIC CYLINDERS—
Entwistle, Jas. L. Co., Pawtucket, R. I.

POTS—Lacquer
Industrial Ovens, Inc., Cleveland, Ohio.

PRESSES—Hydraulic and Mechanical
Standard Machinery Co., Mystic, Conn.

PULLERS AND GRIPS—For Wire
Morgan Construction Co., Worcester, Mass.
Scudder, E. J. Fdry & Mach. Co., Trenton, N. J.
Sjogren Tool and Machine Co., Auburn, Mass.
Sleeper & Hartley, Inc., Worcester, Mass.
Vaughn Machinery Co., Cuyahoga Falls, O.
Wean Equipment Corp., Cleveland, Ohio.

REEL AND TENSION STANDS—
Davis, R. L. Elec. Co., Wallingford, Conn.
Entwistle, Jas. L. Co., Pawtucket, R. I.
Industrial Ovens, Inc., Cleveland, Ohio.
Roll-a-Reel, Cincinnati, Ohio.
Sleeper & Hartley, Inc., Worcester, Mass.
Standard Mill Supply Co., Pawtucket, R. I.
Syncro Machine Co., Perth Amboy, N. J.
Watson Machine Co., Paterson, N. J.

REEL CRUTCHES—
Roll-a-Reel, Cincinnati, Ohio
Watson Machine Co., Paterson, N. J.

REELS & SPOOLS—Drawn Aluminum Alloy
Acrometal Products, Inc., Minneapolis, Minn.
Hubbard Spool Co., Chicago, Ill.

REELS & SPOOLS—Annealing and Stranding
Acrometal Products, Inc., Minneapolis, Minn.
Apco Mossberg Co., Attleboro, Mass.
Howsam Spool Co., Aurora, Ill.
Hubbard Spool Co., Chicago, Ill.
Mossberg Pressed Steel Corp., Attleboro, Mass.
Niles Steel Products Div., Republic Steel Corp. Niles, Ohio.

REELS & SPOOLS—Collapsible
Entwistle, Jas. L. Co., Pawtucket, R. I.

REELS & SPOOLS—Plastic
Hubbard Spool Co., Chicago, Ill.

REELS & SPOOLS—Steel
Apco Mossberg Co., Attleboro, Mass.
Clark, J. L., Mfg. Co., Rockford, Ill.
Howsam Spool Co., Aurora, Ill.
Hubbard Spool Co., Chicago, Ill.
Mason Can Company, East Providence, R. I.
Mossberg Pressed Steel Corp., Attleboro, Mass.
Niles Steel Products Div., Republic Steel Corp. Niles, Ohio.

REELS AND SPOOLS—Shipping and Shop
Acrometal Products, Inc., Minneapolis, Minn.
American Woodworking Co., Chicago, Ill.
Apco Mossberg Co., Attleboro, Mass.
Bridge Mfg. Co., Inc., The, Hazardville, Conn.
Clark, J. L., Mfg. Co., Rockford, Ill.
Howsam Spool Co., Aurora, Ill.
Hubbard Spool Co., Chicago, Ill.
Mason Can Company, East Providence, R. I.
Mossberg Pressed Steel Corp., Attleboro, Mass.
Niles Steel Products Div., Republic Steel Corp Niles, Ohio.
Proctor Reels, Proctorville, Vt.

REELS & SPOOLS—Wooden
Acrometal Products, Inc., Minneapolis, Minn.
American Woodworking Co., Chicago, Ill.
Bridge Mfg. Co., Inc., The, Hazardville, Conn.
Durkee Mfg. Co., Pine River, Minn.
Proctor Reels, Proctorville, Vt.

REELS—Metal Bound
Durkee Mfg. Co., Pine River, Minn.
Howsam Spool Co., Aurora, Ill.
Hubbard Spool Co., Chicago, Ill.

REELS—Pay-off
Norsholm Industries, Rochester, Mich.

REELS—Takeoff
Acrometal Products, Inc., Minneapolis, Minn.
Apco Mossberg Co., Attleboro, Mass.
Bridge Mfg. Co., The, Hazardville, Conn.
Clark, J. L., Mfg. Co., Rockford, Ill.
Howsam Spool Co., Aurora, Ill.
Hubbard Spool Co., Chicago, Ill.
Mossberg Pressed Steel Corp., Attleboro, Mass.
Niles Steel Products Div., Republic Steel Corp Niles, Ohio.
Proctor Reels, Proctorville, Vt.

REELS—Vulcanizing & Impregnating
Apco Mossberg Co., Attleboro, Mass.
Howsam Spool Co., Aurora, Ill.
Hubbard Spool Co., Chicago, Ill.
Mossberg Pressed Steel Corp., Attleboro, Mass.
Niles Steel Products Div., Republic Steel Corp., Niles, Ohio.

REELS—Wire Drawing
Acrometal Products, Inc., Minneapolis, Minn.
Apco Mossberg Co., Attleboro, Mass.
Howsam Spool Co., Aurora, Ill.
Hubbard Spool Co., Chicago, Ill.
Mossberg Pressed Steel Corp., Attleboro, Mass.
Niles Steel Products Div., Republic Steel Corp., Niles, Ohio.

WHERE TO BUY, Continued

REELS—Wire Mill
Acrometal Products, Inc., Minneapolis, Minn.
Apco Mossberg Co., Attleboro, Mass.
Bridge Mfg. Co., The, Hazardville, Conn.
Durkee Mfg. Co., Pine River, Minn.
Howsam Spool Co., Aurora, Ill.
Hubbard Spool Co., Chicago, Ill.
Mason Can Company, East Providence, R. I.
Mossberg Pressed Steel Corp., Attleboro, Mass.
Niles Steel Products Div., Republic Steel Corp. Niles, Ohio.
Proctor Reels, Proctorville, Vt.

REFRACTORIES—High Temperature
Norton Company, Worcester, Mass.

RESISTANCE HEATING—Annealing Patenting, Etc.
Trauwood Engr. Co., Cleveland, Ohio.

ROD BAKERS—
(See Ovens—Rod Bakers)

RODS—Stainless Steel
American Steel & Wire Co., Cleveland, Ohio.

RODS—Wire—Non-Ferrous
American Brass Co., The, Waterbury, Conn.
Platt Bros. & Co., The, Waterbury, Conn.

RODS—Wire, Steel
Bethlehem Steel Co., Bethlehem, Pa.
Continental Steel Corp., Kokomo, Indiana.
Keystone Steel & Wire Co., Peoria, Ill.
Pittsburgh Steel Company, Pittsburgh, Pa.
Roebling's John A., Sons Co., Trenton, N. J.
Montan Export, Inc., New York, N. Y.
Youngstown Sheet & Tube Co., Youngstown, O.

ROPE—Wire
American Steel & Wire Company, Cleveland, O.
Bethlehem Steel Co., Bethlehem, Pa.
Roebling's John A., Sons Co., Trenton, N. J

RUBBER AND RUBBER COMPRESSION TESTERS—
Scott Testers, Inc., Providence, R. I.

RUST PROOF COMPOUNDS—
(See Compounds—Rust Preventing)

RUST REMOVING COMPOUNDS—
(See Compounds—Rust Preventing)

SALTS—Heat Treating, Descaling, etc.
Holden, A. F., Co., The, Detroit, Mich.
Houghton, E. F. & Co., Philadelphia, Pa.

SATURATION SYSTEMS—
Industrial Ovens, Inc., Cleveland, Ohio.
Watson Machine Co., Paterson, N. J.
Wire & Textile Mach'y, Inc. (used) Pawtucket, R.I.

SOAPS—Industrial and Wire Drawing
(See Compounds—Wire Drawing)

SODIUM—for Descaling
Du Pont de Nemours, E. I. & Co., Electrochemical Dept., Wilmington, Del.
Holden, A. F., Co., The, Detroit, Mich.

SOLVENT RESIN SYSTEMS—Experimental
Industrial Ovens, Inc., Cleveland, Ohio.

SPOOLS—Stamped Metal for Retail Wire Sales
Clark, J. L. Mfg. Co., Rockford, Ill.
Mason Can Co., East Providence, R. I.

STAMPINGS—Steel
Hubbard Spool Company, Chicago, Ill.
Mossberg Pressed Steel Corp., Attleboro, Mass.

STRIP—Steel
Bethlehem Steel Co., Bethlehem, Pa.
Continental Steel Corp., Kokomo, Ind.
Roebling's John A., Sons Co., Trenton, N. J.
Youngstown Sheet & Tube Co., Youngstown, O.

SWIFTS—Take-off
Apco Mossberg Co., Attleboro, Mass.
Mossberg Pressed Steel Corp., Attleboro, Mass.
Watson Machine Co., Paterson, N. J.

TANKS—Compound
Haveg Corp., Newark, Del.
Watson Machine Co., Paterson, N. J.

TANKS—Pickling
Ceilcote Company, Cleveland, Ohio.
Chemsteel Construction Co., Pittsburgh, Pa.
Haveg Corp., Newark, Del.

TANKS—Steel
Chemsteel Construction Co., Pittsburgh, Pa.
Mossberg Pressed Steel Corp., Attleboro, Mass.

TIES—WIRE—
(See Wire Ties)

TINNING PROCESS—
Du Pont de Nemours, E. I. & Co., Electrochemic l Dept., Wilmington, Del.
Metal & Thermit Corp., New York, N. Y.

TINSEL—Cords, Decorative
(See: Tinsel—Electric Conductor)

TINSEL—Electric Conductor
Montgomery Co., The, Windsor Locks, Conn.

TINSEL—Electric Resistance
(See: Tinsel—Electric Conductor)

TINSEL—Lame, Silver and False Gold
(See: Tinsel—Electric Conductor)

TINSEL—Thread, Silver and False Gold
(See: Tinsel—Electric Conductor)

TINSEL—Thread, Decorative
(See: Tinsel—Electric Conductor)

TINSEL—Wire
(See: Tinsel—Electric Conductor)

TOOLS—Spring Forming
Lundahl Corporation, Hartford, Conn.

TOOLS—Wire Cutting
Porter, H. K., Inc., Everett, Mass.

TRAMRAIL SYSTEMS—
Cleveland Tramrail Div. of the Cleveland Crane & Engineering Co., Wickliffe, O.

TRAVERSES—For Reels
Entwistle, Jas. L. Co., Pawtucket, R. I.
Hubbard Spool Company, Chicago, Ill.
Niles Steel Products Div., Republic Steel Corp. Niles, Ohio

TRAVERSE MECHANISMS—
Apco Mossberg Co., Attleboro, Mass.
Mossberg Pressed Steel Corp., Attleboro, Mass.
New England Butt Co., Providence, R. I.
Niles Steel Products Div., Republic Steel Corp. Niles, Ohio
Watson Machine Co., Paterson, N. J.
Wire & Textile Mach'y, Inc. (used) Pawtucket, R.I.

TUBE BENDERS AND FORMERS—
H. D. Kilmer Co., Cleveland, Ohio.

VALVES & FITTINGS—Acid Resistant
Haveg Corp., Newark, Del.

VARNISHES—for Electric Wire
N. E. Lacquer Co., E. Providence, R. I.
Standard Varnish Works, New York, N. Y.

VULCANIZERS—
Watson Machine Co., Paterson, N. J.

VULCANIZING PANS—
American Insulating Mach'y Co., Phila., Pa.
Mossberg Pressed Steel Corp., Attleboro, Mass.

WELDERS—Spot and Butt
Eisler Engineering Co., Newark, N. J.
Micro Products Co., Chicago, Ill.

WIND-UP AND UNWIND SYSTEMS—Continuous
American Insulating Mach'y Co., Phila., Pa.
Davis, R. L. Electric Co., Wallingford, Conn.
Entwistle, Jas. L. Co., Pawtucket, R. I.
Federal Manufacturing Co., Wallingford, Conn.
Industrial Ovens, Inc., Cleveland, Ohio
Watson Machine Co., Paterson, N. J.
Wire & Textile Mach'y, Inc. (used) Pawtucket, R.I.

WIRE—Alloy
Montan Export, Inc., New York, N. Y.

WIRE—Aluminum
Elmet Division, North American Philips Company, Inc., Lewistown, Maine
Malin & Co., Cleveland, Ohio

WIRE—Barbed
Interlocking Fence Co., Morton, Ill.

WIRE—Cast
Youngstown Sheet & Tube Co., Youngstown, O.

WIRE—Cold Heading
American Steel & Wire Co., Cleveland, Ohio
Bethlehem Steel Co., Bethlehem, Pa.
Continental Steel Corp., Kokomo, Ind.
Keystone Steel & Wire Co., Peoria, Ill.
Pittsburgh Steel Co., Pittsburgh, Pa.
Roebling's John A., Sons Co., Trenton, N. J.
Youngstown Sheet & Tube Co., Youngstown, O.

WIRE—Electric
American Brass Co., The, Waterbury, Conn.
Chase Brass & Copper Co., Waterbury, Conn.
Hudson Wire Co., Ossining, N. Y.
Malin & Co., Cleveland, Ohio

WIRE—Flat, Fine
Elmet Division, North American Philips Company, Inc., Lewistown, Maine
Montgomery Co., The, Windsor Locks, Conn.

WIRE—Manufacturers
American Steel & Wire Co., Cleveland, Ohio
Bethlehem Steel Co., Bethlehem, Pa.
Chase Brass & Copper Co., Waterbury, Conn.
Continental Steel Corp., Kokomo, Ind.
Johnson Steel & Wire Co., Worcester, Mass.
Keystone Steel & Wire Co., Peoria, Ill.
Montan Export, Inc., New York, N. Y.
Newbury Company, The, Boston, Mass.
Pittsburgh Steel Co., Pittsburgh, Pa.
Roebling's, John A., Sons Co., Trenton, N. J.
Wickwire Brothers, Inc., Cortland, N. Y.
Youngstown Sheet & Tube Co., Youngstown, O.

WIRE—Music
American Brass Co., The, Waterbury, Conn.
American Steel & Wire Co., Cleveland, Ohio
Johnson Steel & Wire Co., Inc., Worcester, Mass.
Malin & Co., Cleveland, Ohio
Montan Export, Inc., New York, N. Y.
Newbury Company, The, Boston, Mass.
Specialty Wire Co., Inc., Worcester, Mass.

WIRE—Nickel Silver and Phosphor Bronze
American Brass Co., The, Waterbury, Conn.
Hudson Wire Co., Ossining, N. Y.
Malin & Co., Cleveland, Ohio.
Chase Brass & Copper Co., Waterbury, Conn.

WIRE—Non-Ferrous to Specifications for Special Purposes
American Brass Co., The, Waterbury, Conn.
American Steel & Wire Co., Cleveland, Ohio
Chase Brass & Copper Co., Waterbury, Conn.
Hudson Wire Co., Ossining, N. Y.
North American Philips Co., Inc., New York, N. Y.

WIRE—Oil Tempered
Pittsburgh Steel Co., Pittsburgh, Pa.

WIRE—Spring
American Brass Co., The, Waterbury, Conn.
Bethlehem Steel Co., Bethlehem, Pa.
Continental Steel Corp., Kokomo, Ind.
Johnson Steel & Wire Co., Inc., Worcester, Mass.
Keystone Steel & Wire Co., Peoria, Ill.
Newbury Company, The, Boston, Mass.
Pittsburgh Steel Co., Pittsburgh, Pa.
Specialty Wire Co., Inc., Worcester, Mass.
Youngstown Sheet & Tube Co., Youngstown, O.

WIRE—Stainless Steel
American Steel & Wire Co., Cleveland, Ohio
Firth Sterling Steel & Carbide Co., McKeesport, Pa.
Specialty Wire Co., Inc., Worcester, Mass.

WIRE—Steel—Also Coppered and Galvanized Steel
Bethlehem Steel Co., Bethlehem, Pa.
Continental Steel Corp., Kokomo, Ind.
Johnson Steel & Wire Co., Inc., Worcester, Mass.
Keystone Steel & Wire Co., Peoria, Ill.
Pittsburgh Steel Co., Pittsburgh, Pa.
U. S. Steel Export Co., New York, N. Y.
Wickwire Brothers, Inc., Cortland, N. Y.
Youngstown Sheet & Tube Co., Youngstown, O.

WIRE—Straightening and Cutting
Pittsburgh Cut Wire Co., Pittsburgh, Pa.
Wickwire Brothers, Inc., Cortland, N. Y.

WIRE—Tungsten
North American Philips Co., Inc., New York, N.Y.

WIRE—Zinc
Platt Bros. & Co., The, Waterbury, Conn.

WIRE CLOTH—Industrial
Roebling's, John A., Sons Co., Trenton, N. J.
Wickwire Brothers, Inc., Cortland, N. Y.

WIRE—Weaving (Non-Ferrous)
American Brass Co., The, Waterbury, Conn.
Chase Brass & Copper Co., Waterbury, Conn.

WRAPPING PAPER—Creped
Crepe-Kraft Company, The, Division National Waterproof Papers, Inc., Newark, N. J.
Angier Corporation, The, Framingham, Mass.

YARNS & TAPES—
Du Pont de Nemours, E. I. Co., Wilmington, Del.
Glass Fibers, Inc., Waterville, Ohio
Owens Corning Fiberglas Corp., Toledo, Ohio
Twitchell, E. W., Philadelphia, Pa.

YARN TESTERS—
Scott Testers, Inc., Providence, R. I.

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ESTABLISHED 1845

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ELECTRICAL WIRE AND CABLE, WIRE ROPE AND CORDAGE MACHINERY MANUFACTURERS

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Open construction facilitates adjustments and reduces "down" time.

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NOTE:

We have and can still furnish large tubular machines. However, in the large sizes there is no cost advantage and the obvious advantages of the "HH" designs do not permit us to recommend large tubular rotors for general purpose requirements.

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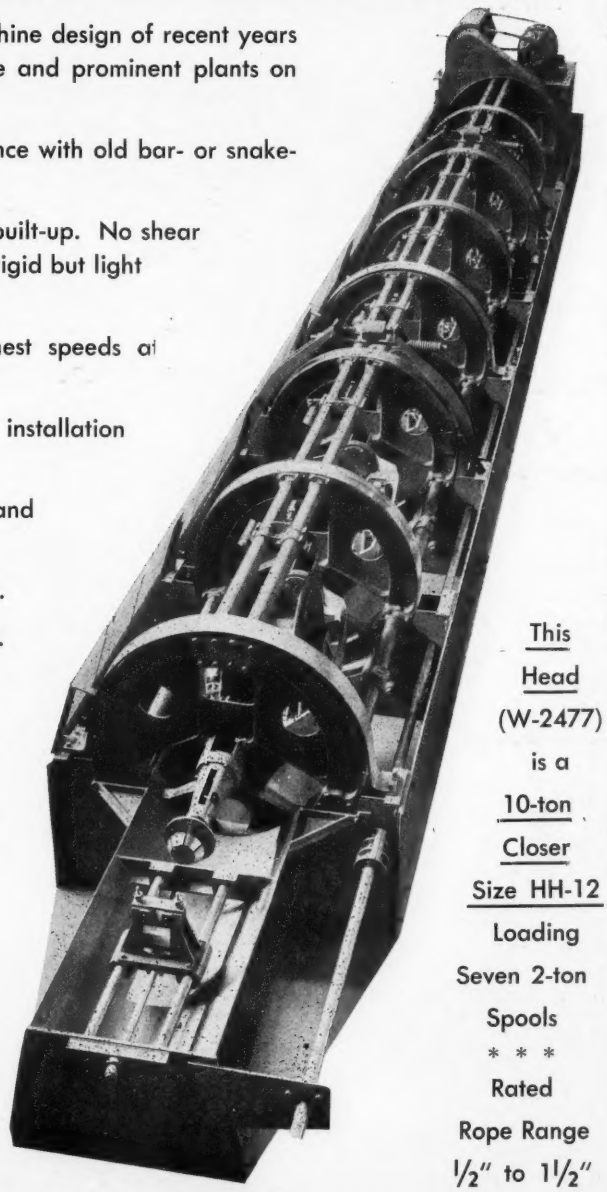

This Head (W-2477) is a 10-ton Closer Size HH-12 Loading Seven 2-ton Spools

* * *

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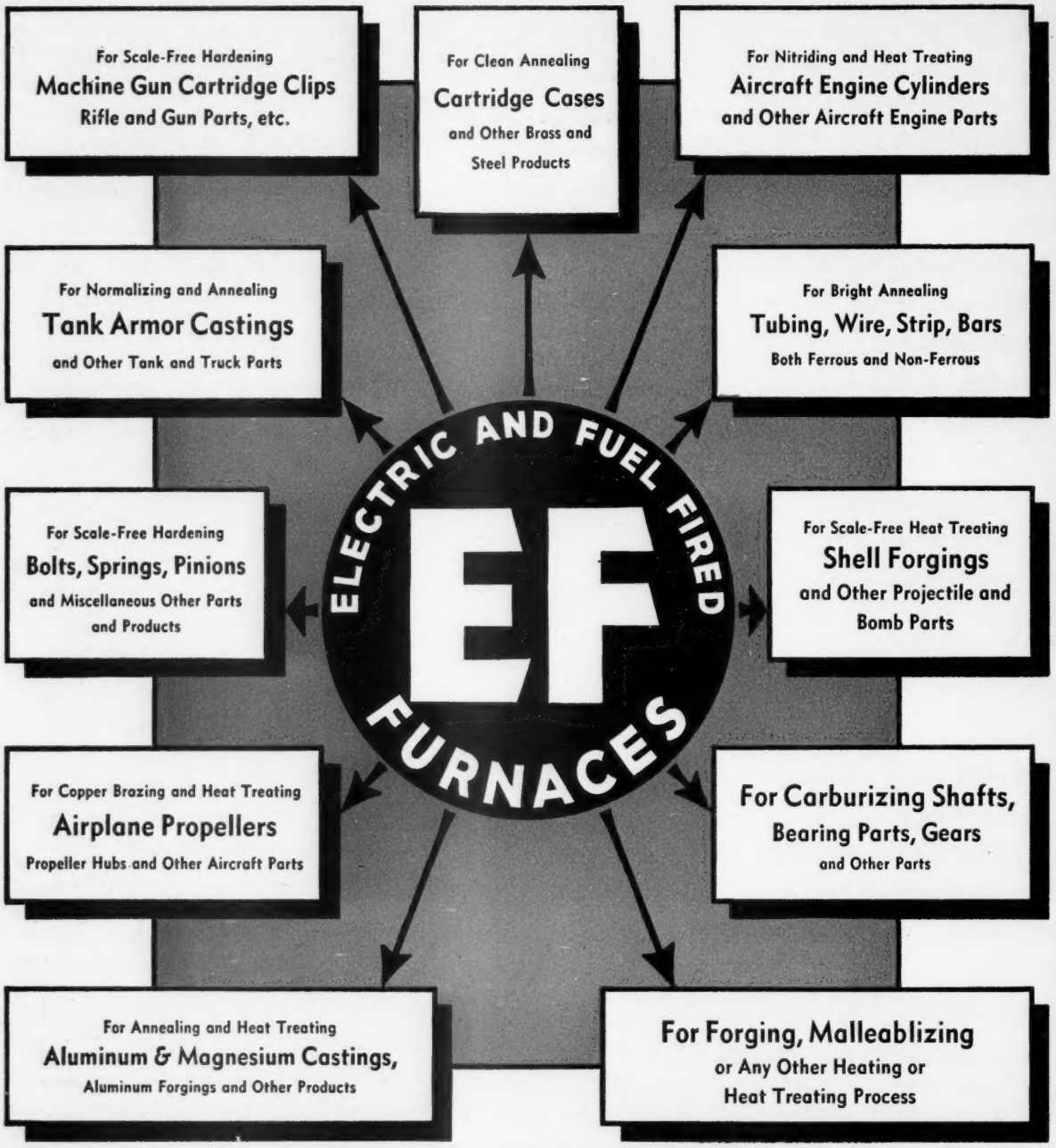
An eastern rope mill now concentrating on high speed stranding and closing will dispose of one 25 wire 100 lb. planetary machine. Good condition. Complete with all electricals. Available for inspection. Immediate delivery. *—Inquiries Invited.*



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